Version
1.3.00

NEC PD Comms Tool

User's Guide

NEC

Software Updates

Occasionally updates and enhancements to the *NEC PD Comms Tool* software will be made available. Use the *Check for updates* feature in the software to automatically see if a newer version is available.

Technical Support and Feedback

For technical support with the *NEC PD Comms Tool* product, please check for any Frequently Asked Questions that may help to solve the issue.

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USA and Canada: www.necdisplay.com

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Revision 150224

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Precautions:

- **This software application allows many advanced features of the display to be adjusted. Care should be taken when making any adjustments to avoid misadjustment.**

Important Notes:

- **This document covers both the Mac OS and Windows versions of the *NEC PD Comms Tool* software. The features and functions of both versions are identical unless noted otherwise.**
- **This document is intended to be used together with the display's User Manual and optionally the display's External Control specification document. It is not intended as a replacement for either.**
- **It is very important to note that not all displays support all of the OpCodes, commands, and functions provided in this software. Refer to the individual model's External Control specification document to see what is supported.**
- **The External Control specification document for each model is available on the NEC Display Solutions websites and is typically located on the product's Downloads page.**

Supported Display Monitors

NEC PD Comms Tool supports the following NEC display monitor models:

- **NEC P Series (P401, P461, P521 etc.)**
- **NEC X Series (X461UN, X461HB, X431BT etc.) including UHD models such as the X841UHD**
- **NEC S Series (S401, S461, S521 etc.)**
- **NEC M Series (M401, M461 etc.)**
- **NEC Exx2 series (E322, E422, E462, E552 etc.) and newer including the Exx5 series**
- **NEC Multeos M40 and M46 [RS232 connection only]**
- **NEC MultiSync LCD20 Series (LCD4020, LCD4620 etc.) [RS232 connection only]**

System Requirements

NEC PD Comms Tool has the following system requirements:

	Mac OS	Microsoft Windows
Operating System	Apple Mac OS X v10.5 or higher.	Microsoft Windows XP, XP x64, Windows Server 2003, Windows Vista (32 or 64 bit), Windows 7 (32 or 64 bit), Windows 8 or 8.1 (32 or 64 bit).
LAN (for supported display models)	Included on all Macs	Standard TCP/IP LAN interface (optional if using RS232 or Wireless LAN)
RS232	A USB to RS232 adapter can be used if connecting the Mac to displays via RS232 instead of via LAN. Null modem cables to connect devices.	One or more RS232 COM Ports (optional if using LAN). Null modem cables to connect devices. A USB to RS232 adapter can be used if necessary.

What's new in this version

This version of *NEC PD Comms Tool* has the following new features and functionality since the previous version of 1.2.xx:

- **Redesigned layout -** The design has been changed to allow for more controls and commands to be added. A function list control lists all of the controls and commands available within the application. Each selected function displays a panel with function specific controls.
- **New commands -** Support for commands on newer display models has been added. These commands include items such as Proof Of Play, Firmware Version, and Input Naming.
- **New OpCode Control Names -** Control names for new controls have been added to allow them to be used in scripting and for easy identification. The main list of OpCode Control Names can be optionally grouped by category, or listed alphabetically.

Chapter 1

Introduction

Overview

NEC PD Comms Tool (NEC Public Display Communications Tool) is a software application that can be used to configure, control, and test supported NEC large screen LCD display models via either RS232 or LAN connections. It can also be used to assist with developing and debugging external control systems by showing the communications protocol for commands exchanged between the software and displays.

Main Features and Benefits

NEC PD Comms Tool provides a simple, intuitive interface to perform the following functions:

- Provides easy remote access to many common controls.
- Access to advanced controls.
- Assists with diagnosing connection and configuration related problems.
- Displays and logs all commands exchanged via RS232 or LAN.
- Shows a breakdown of how commands are constructed from the input parameters and monitor protocol.
- Powerful scripting command language allows complex control sequences to be performed on multiple displays.

Example Usage Scenarios

- Finding command codes for programming into an external controller.
- Configuring the settings on multiple displays to custom values with one click via a script. This would be useful when deploying many displays.
- Using a script to quickly switch the TileMatrix settings on a video wall between multiple layouts.
- Making adjustments to displays when it is not physically possible or convenient to use the IR Remote control.

Chapter 2

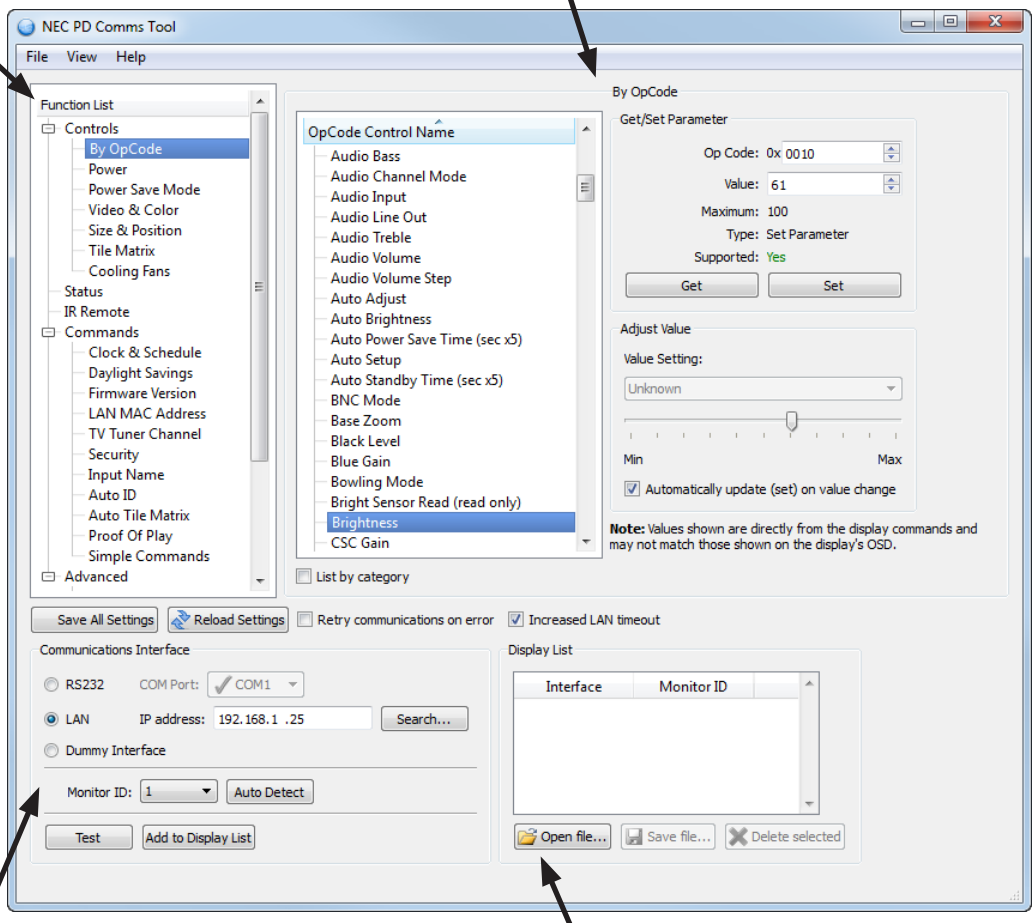
Controls and Functions

Main NEC PD Comms Tool window

The ***NEC PD Comms Tool*** window has a list of selectable functions on the left side. The right side shows the panel for the currently selected function. At the bottom of the window are the Communications Interface settings which specify how to connect to a display, such as via LAN or RS232.

Function List
Selects the function panel shown on the right

Function Panel
Panel with controls for the currently selected function.

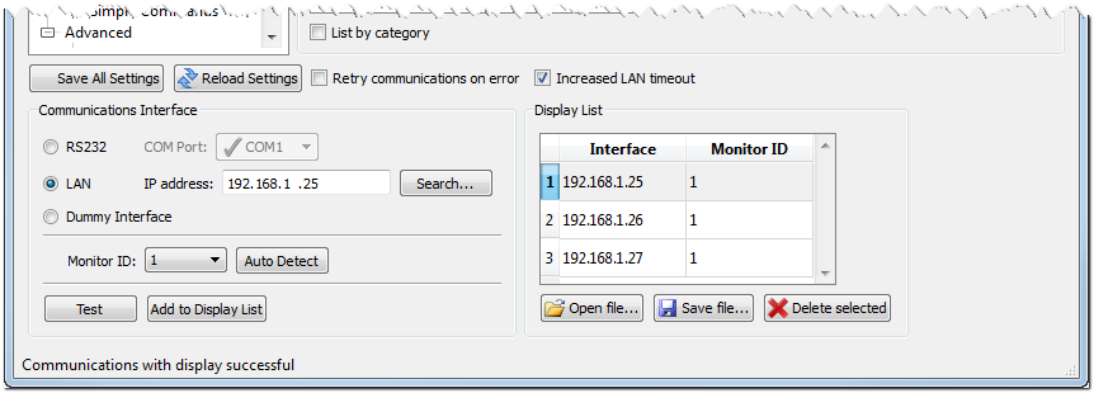


Communications Interface
Configures the connection to the display(s) and Monitor ID

Display List
Easy access to Communications Interface settings for multiple displays

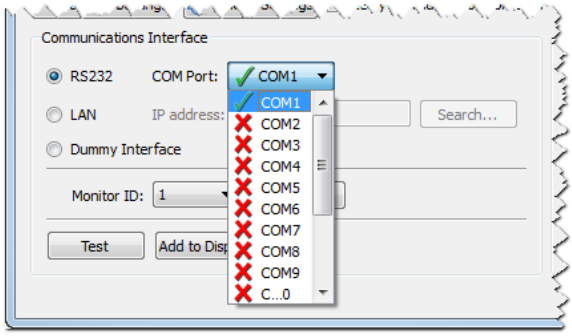
Communications Interface

The Communications Interface section on the main window is used to specify the connection interface to a display. Displays can be connected either by RS232 or LAN (if supported).



When connecting to a display via LAN, select ***LAN*** and enter the IP address of the display.

When connecting via RS232, select ***RS232*** and select the COM port on the host PC. COM ports that are currently available on the system are shown with a green check mark.



When connecting to displays that are daisy chained via RS232, but the first display is connected via LAN, select ***LAN*** and enter the IP address of the first display.

See the example display connections section for examples of various configurations when multiple displays are used.

An additional option, ***Dummy Interface***, is provided to allow some limited functionality of the application without the need to have a display connected. This can be useful for example to determine the data to send to perform a particular command, using the *View - Communications Log* feature, even when a display is not physically connected. Only the data to send to perform a command will be shown, and it does not mimic the expected reply from a display.

Select the ***Monitor ID*** of the display or group of displays to control. The Monitor ID can also be automatically detected by clicking ***Auto Detect***. In the case of multiple displays being daisy-chained, the lowest Monitor ID being used will be detected.

Click the ***Test*** button to try communicating with the display. If this is successful, a message will be shown at the bottom of the window. An error message will be shown if an error occurred. See the troubleshooting guide for suggestions.

The ***Retry communications on error*** setting will force the application to re-send a command up to 3 times if it fails. This can be useful in some environments if the connection is unreliable due to noise etc.

The ***Increased LAN timeout*** setting increases the time that the software will wait for a reply. This can be useful if a display is connected via a high-latency LAN connection such as a cellular link.

Display List

The ***Display List*** allows Communications Interface settings for multiple displays to be stored for easy access by selecting from a list.

This is useful for example when there are multiple displays in use, as it allows the communications configuration for each to be stored, and accessed quickly by selecting from the list.

When selecting a display from the list, the Communications Interface settings will automatically change to the selected display's settings.

To add the current Communications Interface settings to the Display List, click the ***Add to Display List*** button.

To save the current Display List to a file for later use, click the ***Save file…*** button.

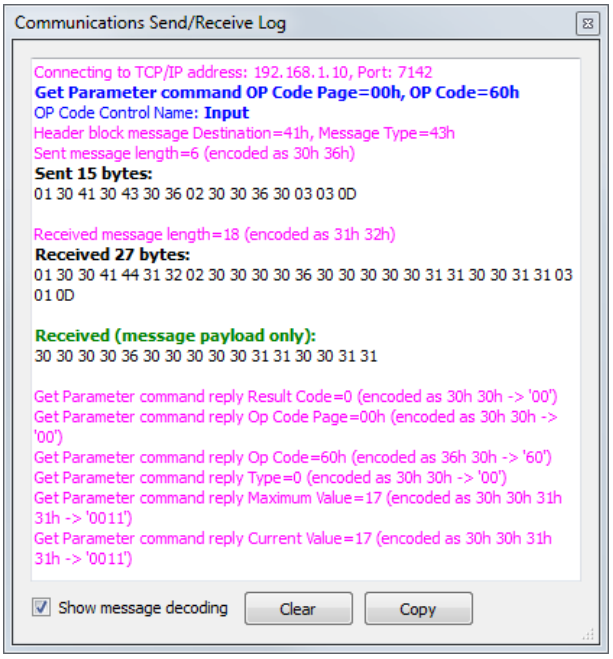
To load a previously saved Display List, click on the ***Open file…*** button.

To delete the currently selected item in the Display List, click the ***Delete Selected*** button.

Communications Send/Receive Log

The C*ommunications Send/Receive Log* window is accessed from the ***View*** menu. When opened, the window shows the actual data that is transmitted to and received from a display for each command.

This feature is particularly useful to help understand the format of the command protocol when making custom applications. It can also be used to quickly determine the command sequence for a particular operation which can then be programmed into another control device – thus avoiding having to understand the details of the communications protocol. It is expected to be used in conjunction with the communications protocol specification document available for each model from NEC.


Communications Send/Receive Log
Connecting to TCP/IP address: 192.168.1.10, Port: 7142
Get Parameter command OP Code Page=00h, OP Code=60h
OP Code Control Name: Input
Header block message Destination=41h, Message Type=43h
Sent message length=6 (encoded as 30h 36h)
Sent 15 bytes:
01 30 41 30 43 30 36 02 30 30 36 30 03 03 0D
Received message length=18 (encoded as 31h 32h)
Received 27 bytes:
01 30 30 41 44 31 32 02 30 30 30 30 36 30 30 30 30 30 31 31 30 30 31 31 03 01 0D
Received (message payload only):
30 30 30 30 36 30 30 30 30 30 31 31 30 30 31 31
Get Parameter command reply Result Code=0 (encoded as 30h 30h -> '00')
Get Parameter command reply Op Code Page=00h (encoded as 30h 30h -> '00')
Get Parameter command reply Op Code=60h (encoded as 36h 30h -> '60')
Get Parameter command reply Type=0 (encoded as 30h 30h -> '00')
Get Parameter command reply Maximum Value=17 (encoded as 30h 30h 31h 31h -> '0011')
Get Parameter command reply Current Value=17 (encoded as 30h 30h 31h 31h -> '0011')
Show message decoding
Clear
Copy

In addition to showing the actual data send and received, a breakdown of most commands can also be shown by selecting ***Show message decoding***. This feature helps in understanding how each message is encoded from the input parameters by providing much more detail.

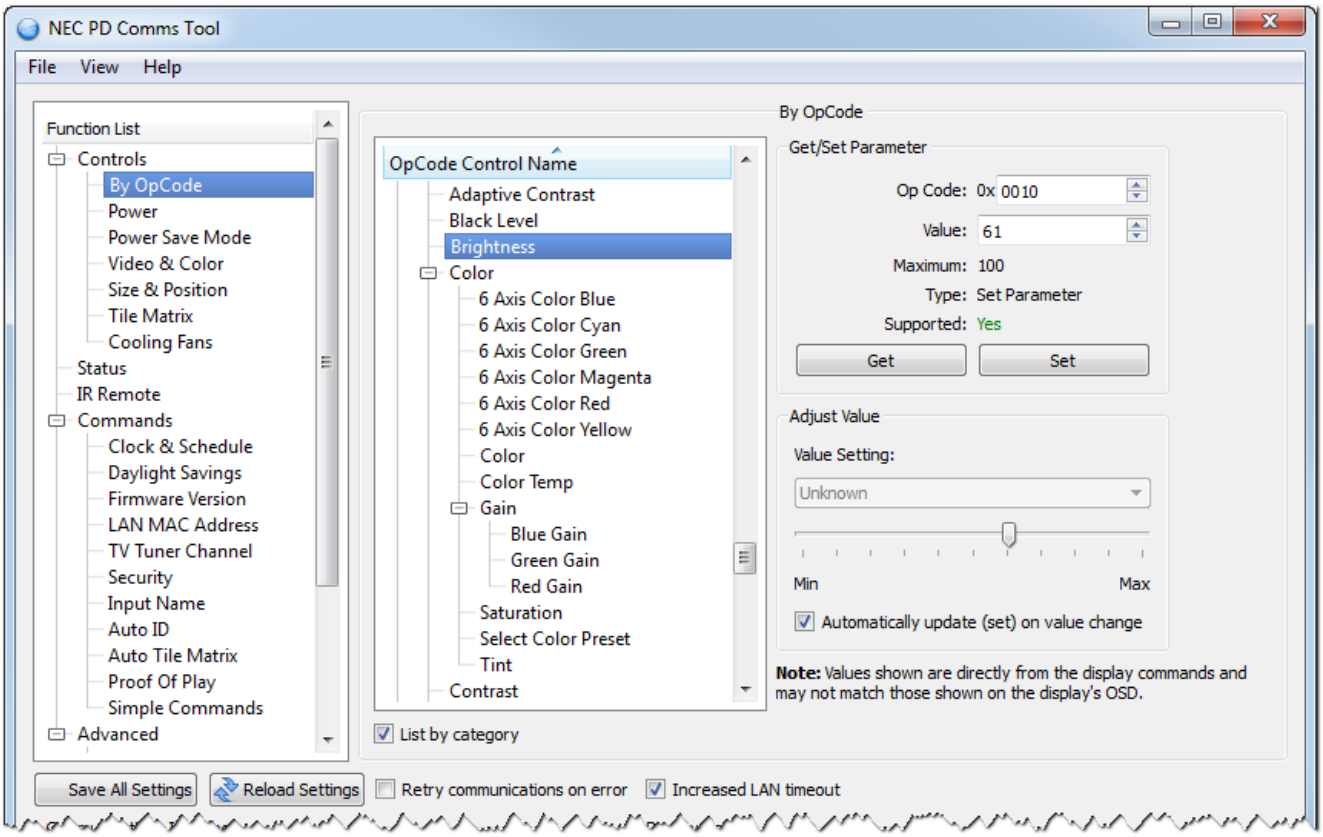
The log text in the widow can be copied to the system clipboard by clicking ***Copy***.

Clicking ***Clear*** will clear the log contents.

Main Window - Function List

Controls - By OpCode panel

The ***Controls - By OpCode*** panel provides access for Get (reading) and Set (writing) control settings. Each control has an Op Code number assigned. See the protocol specification document for your model of display for a list of supported controls and Op Codes.



Controls can accessed either by selecting the Op Code by name from the ***Op Code Control Name*** list, or by entering the hexadecimal Op Code value directly into the ***Op Code*** setting. The Op Code Control Name list can be ordered alphabetically, or by functional category by selecting ***List by category***.

Clicking **Get** will attempt to read the current value of the selected *Op Code* control. The monitor will reply with the status of if the Op Code is supported, the current value, and the maximum possible value.

The value of the Op Code returned from the display will be shown. For some controls, such as *Input*, where each value has discrete setting, the value will be shown in the ***Value Setting*** list. For other controls such as *Brightness* which have a continuous range, the value will be shown on the ***Value Setting*** slider control.

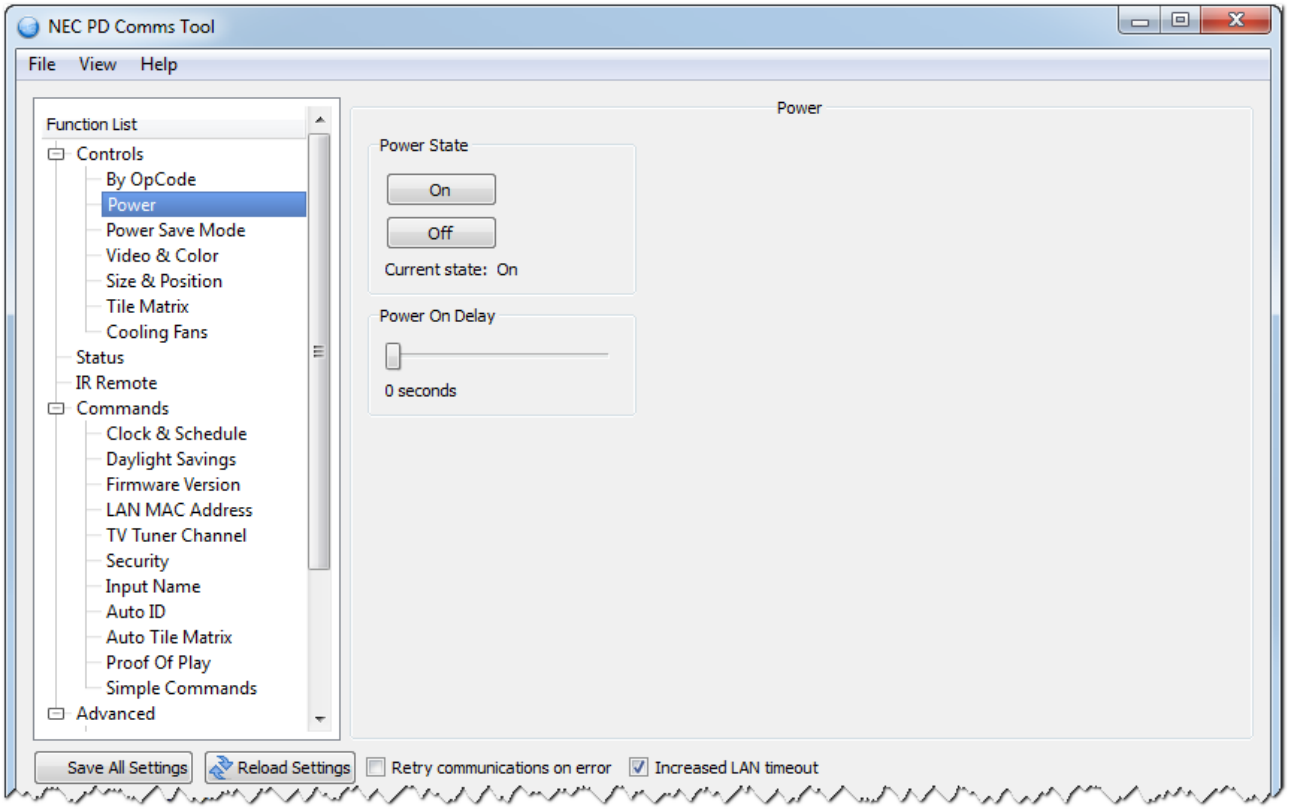
The setting value for the Op Code control can be updated in the monitor by either:

- Editing the ***Value*** setting, and clicking ***Set***.
- Selecting an item from the ***Value Setting*** list.
- Adjusting the ***Value Setting*** slider control.

Note: When completed making adjustments, it is good practice to click the Save All Settings button which will force the monitor to save the changes.

Controls - Power panel

The ***Controls - Power*** panel controls the power settings of the displays.



Clicking the ***On*** button will turn the display or displays on.

Clicking the ***Off*** button will turn the display or displays off.

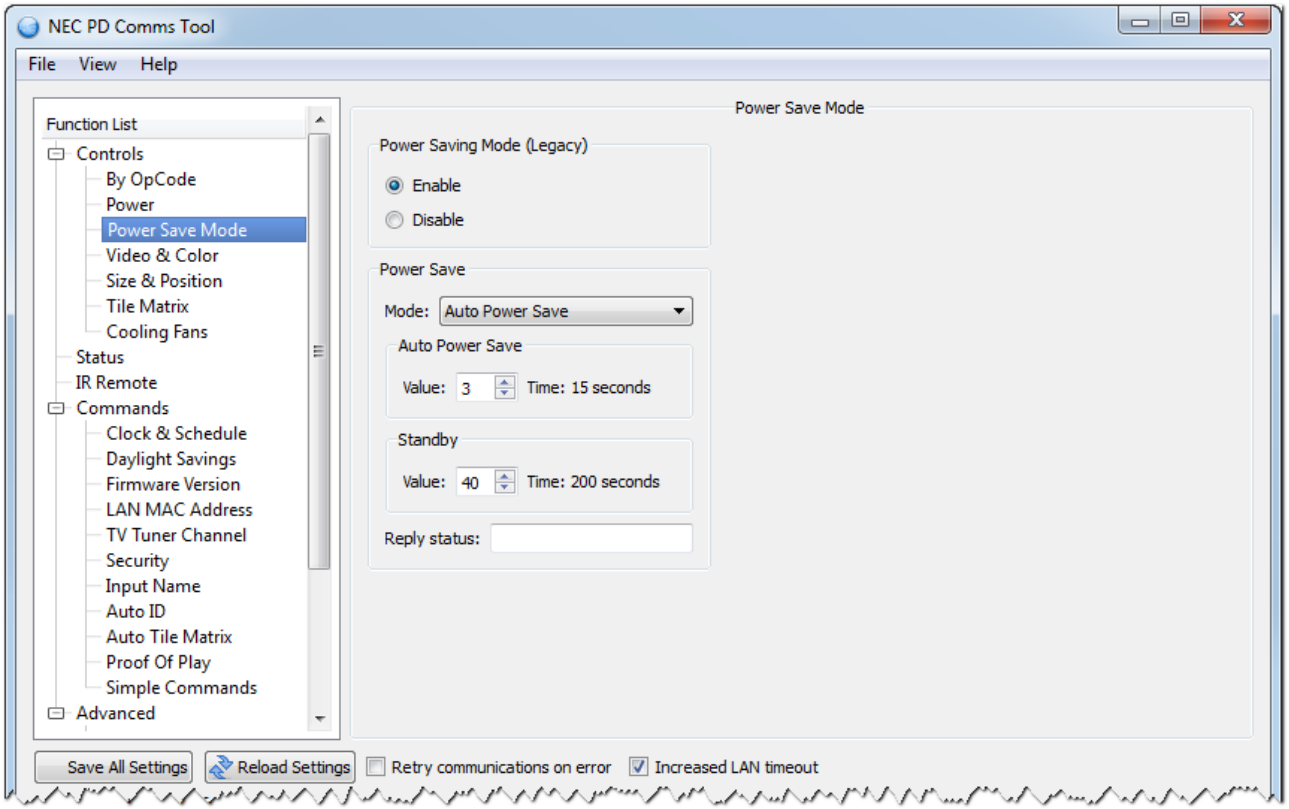
The ***Current State*** of the display is shown.

The ***Power On Delay*** time control sets the time delay is seconds for the display to when the main display circuits are switched on after power on.

By staggering the delay time between displays, a sudden large power rush can be avoided when many displays are turned on.

Controls - Power Save Mode panel

The ***Controls - Power Save Mode*** panel controls the power settings of the displays.

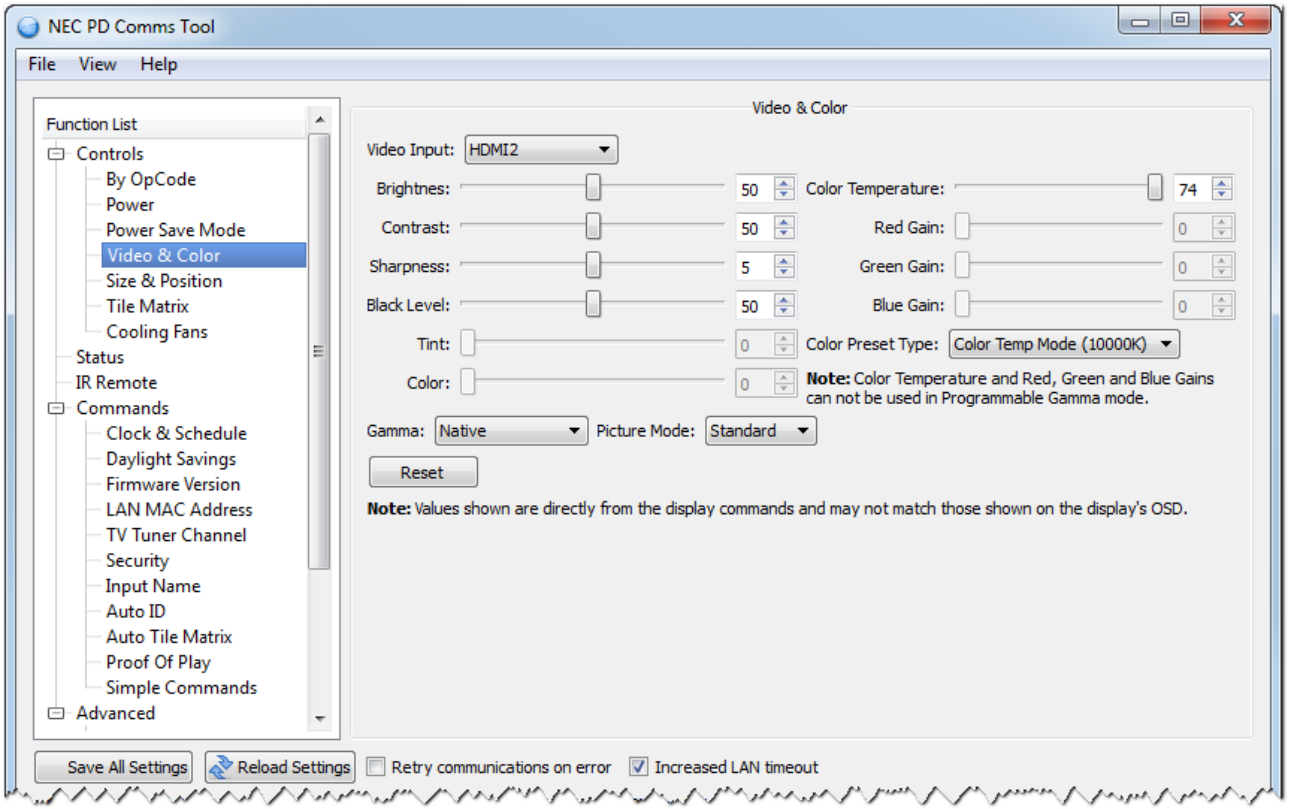


Power Saving Mode (Legacy) can be enabled and disabled for the currently selected video input using ***Enable*** and ***Disable***.

On some display models the type of ***Power Save Mode*** can be selected, as well as the delay time for entering power save after loss of video signal. The ***Reply Status*** shows the reply from the display for this command.

Controls - Video & Color panel

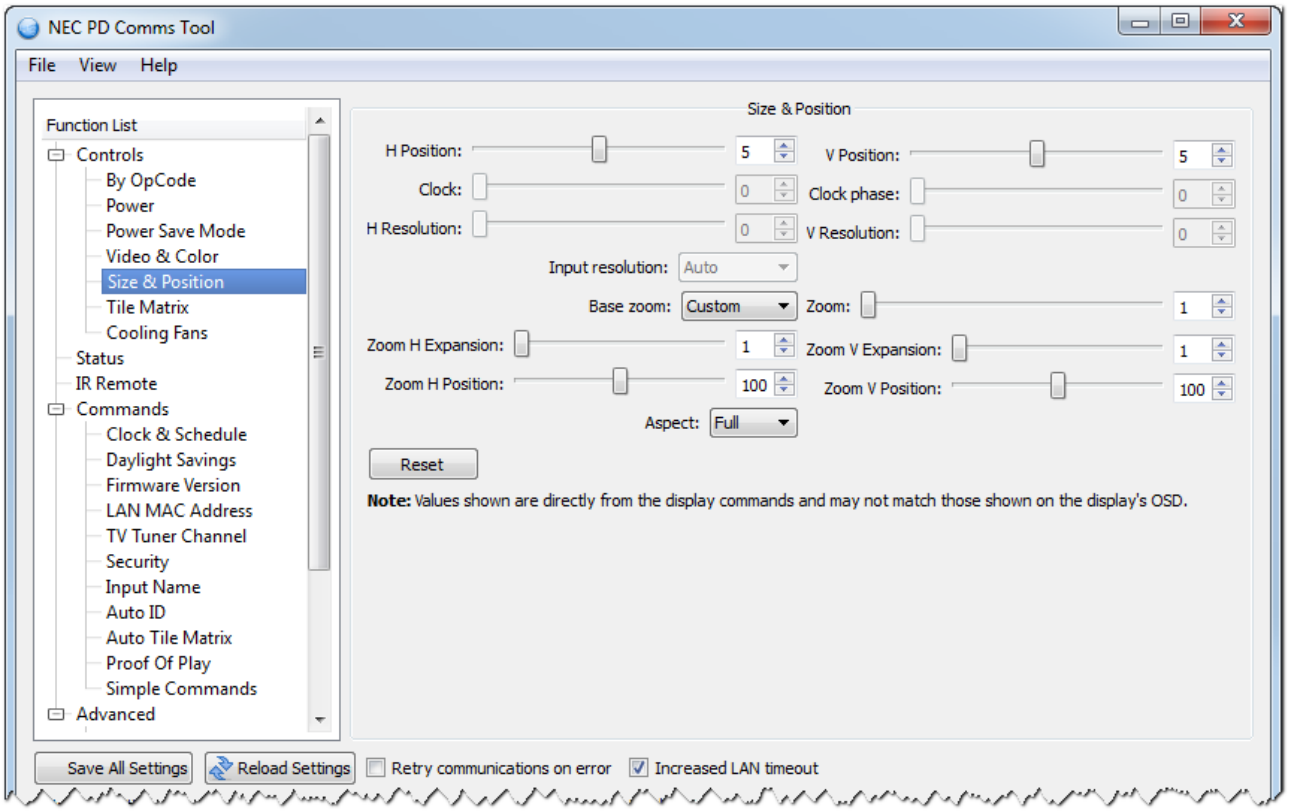
The ***Controls - Video & Color*** panel controls the video signal and color adjustments.



The ***Brightness, Contrast, Sharpness, Black Level, Tint, Color, Gamma, Picture Mode and Red Green and Blue Gains*** controls adjust the settings for the respective video controls in the display.

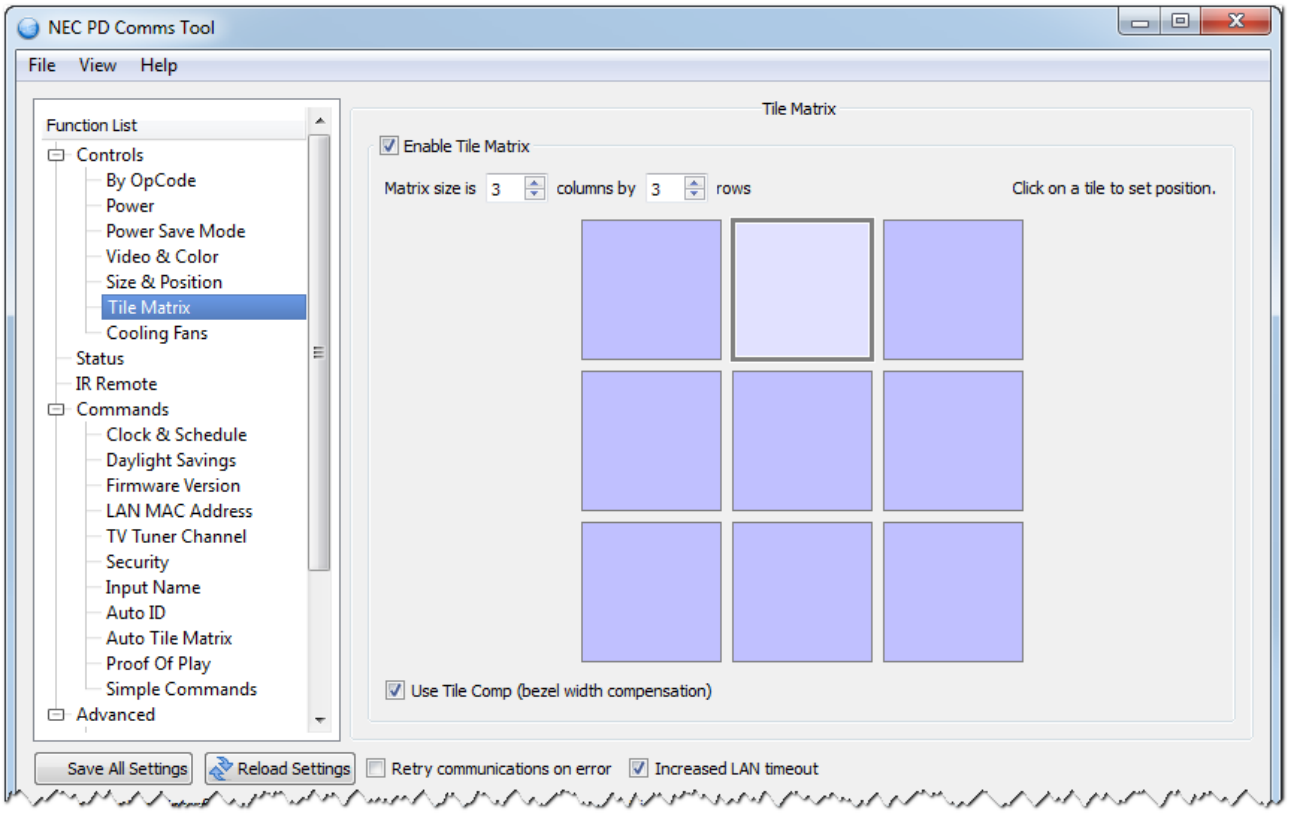
Controls - Size & Position panel

The ***Controls - Size & Position*** panel has controls used to configure the various video size and position settings in the display.



Controls - Tile Matrix panel

The ***Controls - Tile Matrix*** panel has controls used to configure the tile Matrix settings for dividing and expanding a video source over multiple displays.



Enable Tile Matrix - Is used to enable the Tile Matrix feature in the display.

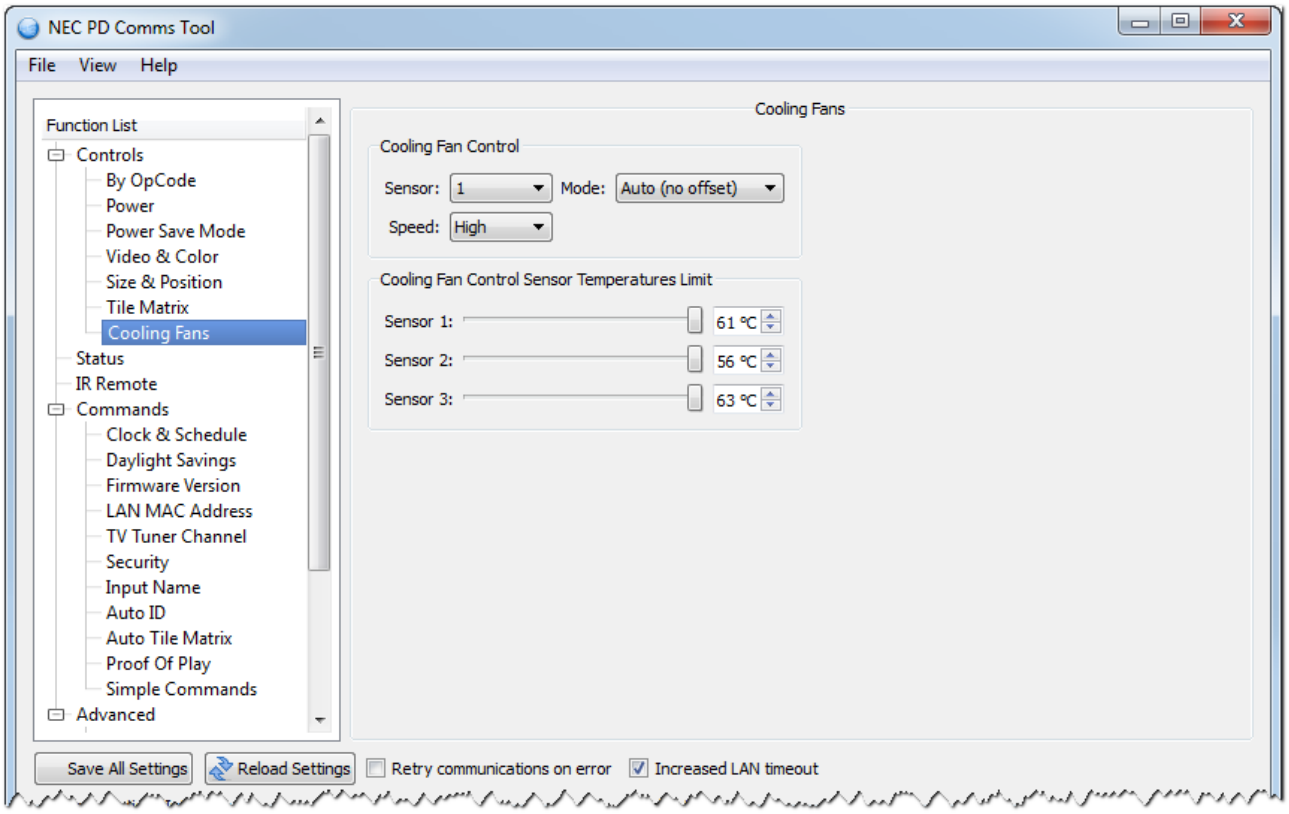
Matrix size - Is used the set the matrix size in rows and columns.

Use Tile Comp - Enables the Tile Comp feature to compensate for the display bezel width when the video is divided.

The position in the TileMatrix can be selected by clicking the relevant display on the matrix diagram.

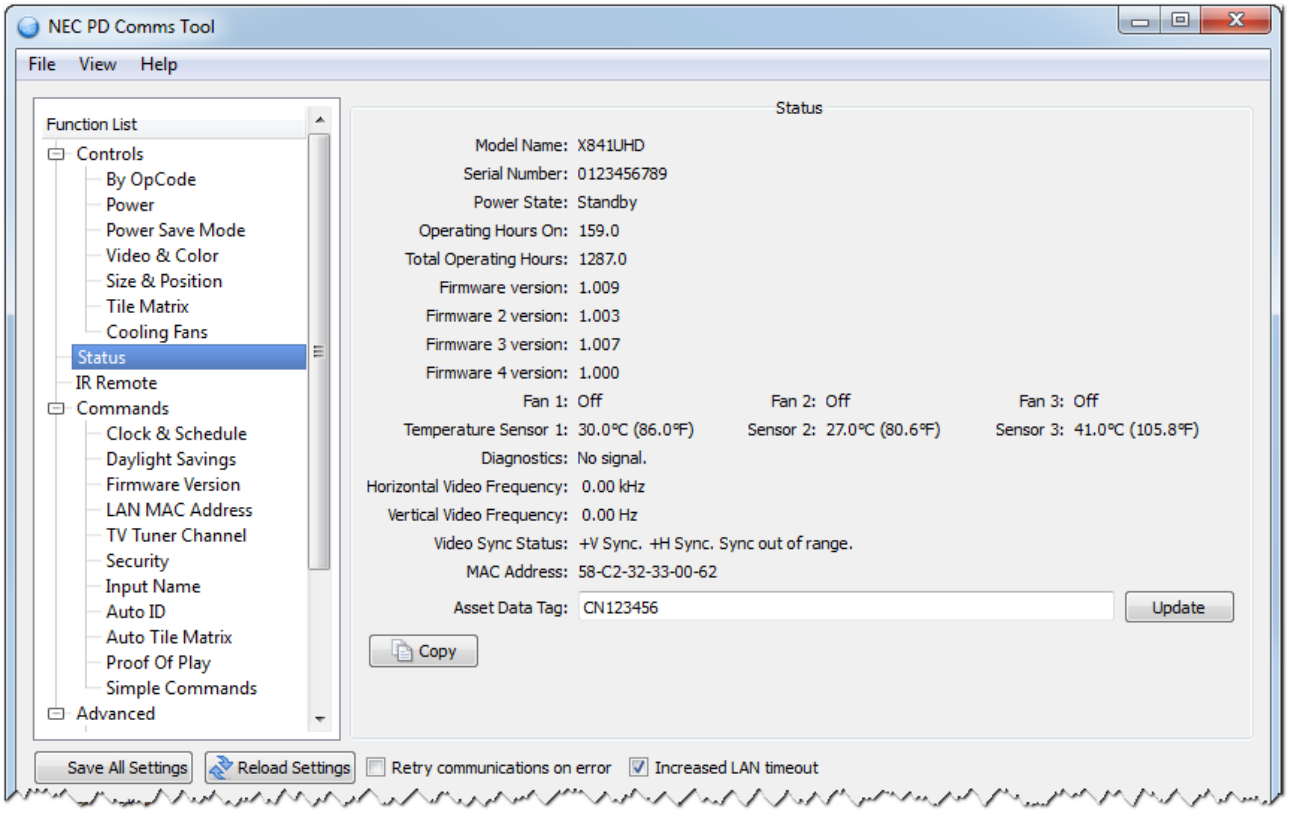
Controls - Cooling Fans panel

The ***Controls - Cooling Fans*** panel has controls used to adjusts the cooling fan settings such as fan speed, temperature trigger point, and forced on or automatic operation.



Status panel

The ***Status*** panel reports various aspects about the display.



Model Name - Shows the model name read from the display.

Serial Number - Shows the serial number read from the display.

Operating Hours On - Shows the number of hours that the display has been power on (LCD panel active).

Total Operating Hours - Shows the total number of hours that the display has had AC power applied.

Firmware version - Shows the main version number of the firmware in the display.

Firmware 2, 3, and 4 version - Shows the sub-system version numbers of the firmware in the display.

Fan 1, 2, and 3 - Shows the current operating status of the internal cooling fans of the display. On, Off and Error conditions are reported. The fan settings can be adjusted on the ***Power*** tab.

Temperature Sensor 1, 2, and 3 - Shows the current internal temperature sensor readings of the display.

Diagnostics - Shows the diagnostic condition reported by the display, as well as various failure conditions such as power supply, fan, and temperature abnormalities.

Horizontal, Vertical Video Frequency, Video Sync - Shows the video frequency and sync polarity of the current video input signal.

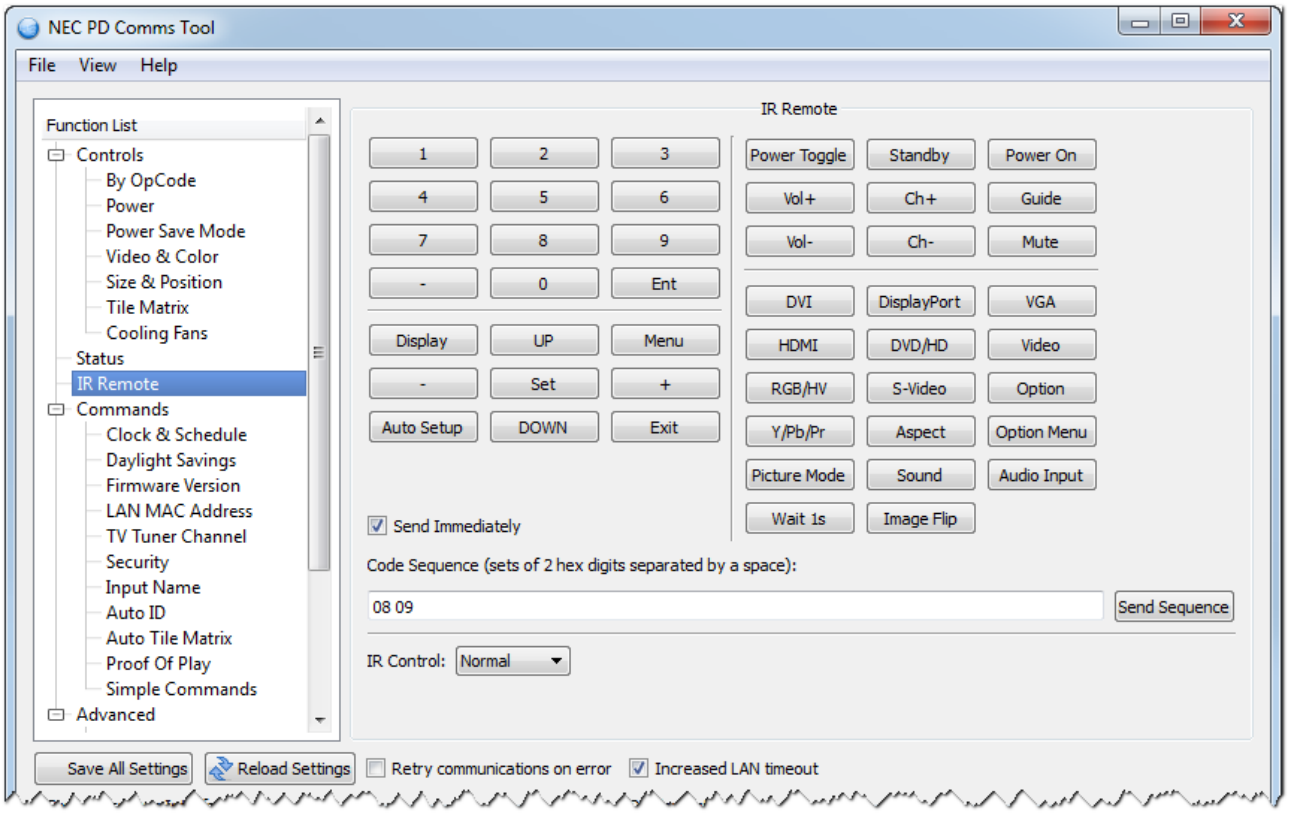
MAC Address - Shows the LAN IP address if available (Note: Not available on Mac OS version).

Asset Data Tag - Shows the customizable text that can be stored in the display for asset tracking purposes (up to 64 characters). Click ***Update*** to store text in the display.

Clicking the ***Copy*** button will copy the current information to the system clipboard.

IR Remote panel

The ***IR Remote*** panel can be used to perform the equivalent operations as the physical IR Remote control using the software and communicating using the LAN or RS232 connection to the display.



This is useful when it is not practical to use the actual IR Remote control with the display, or when it is necessary to access controls by remote that are not available from within the software.

Click the buttons to send the IR Remote command to the display. The display will respond as if it received a signal from the IR Remote control.

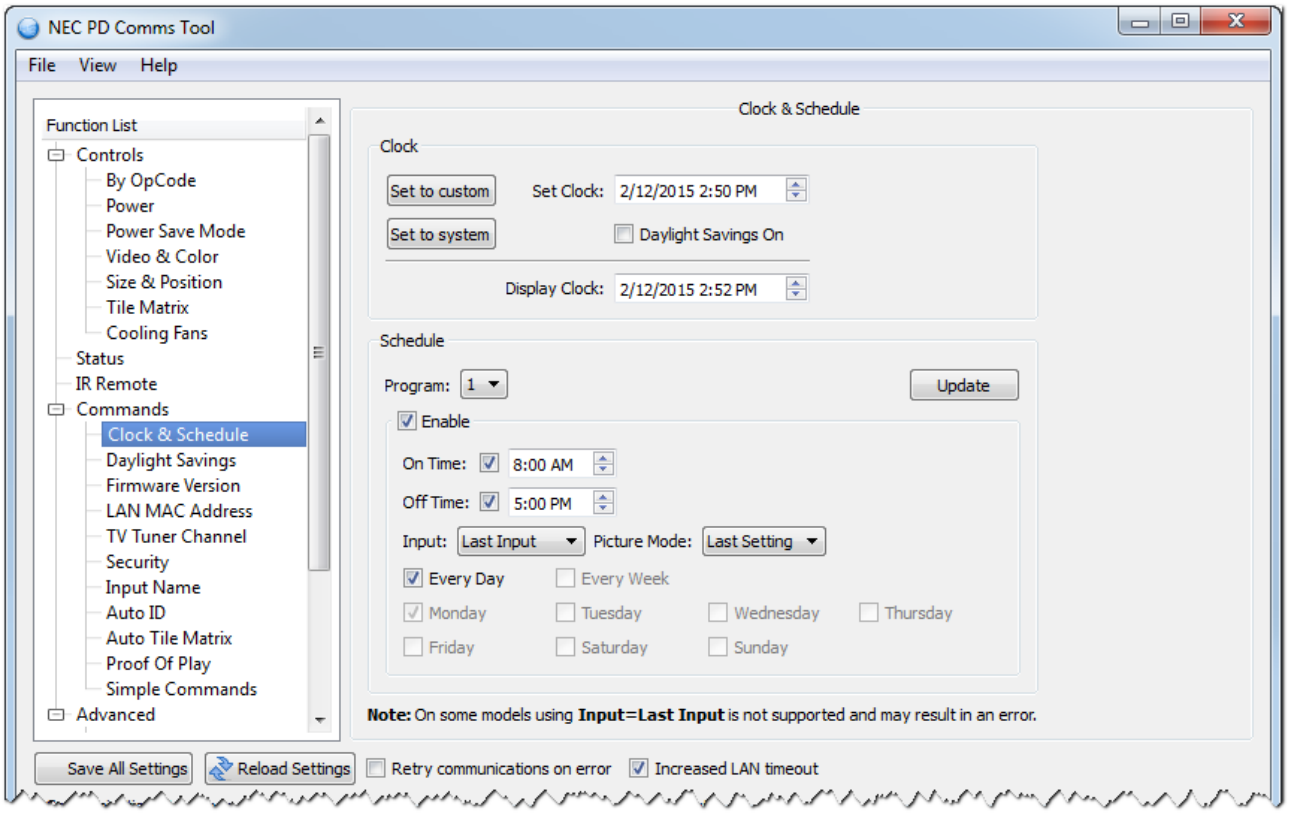
Sequences of commands can be created and sent to the display at once by clicking the ***Send Sequence*** button.

The IR Remote command code will appear in the Code Sequence list and can be manually edited. Each IR Remote button is a single 2 hex digit code.

To prevent each IR Remote command codes from being sent to the display as each button is pressed, deselect the ***Send Immediately*** checkbox.

Commands - Clock & Schedule panel

The ***Clock & Schedule*** panel can be used to set the internal real time clock and schedule functions in the display. Various scheduled operations such as power on, power off, and changing inputs can be configured. Once a schedule has been created in a display, it will perform the operations on its own, and it is not necessary to keep this software running.



Clock

The internal clock can be set to the host PC's system date and time by clicking the ***Set to system*** button. A custom date and time can be set by modifying the ***Set Clock*** setting and clicking ***Set to custom***.

The ***Display Clock*** shows the time as shown on the OSD of display. Click ***Reload Settings*** to refresh.

A custom time and date can be set in the display by modifying the ***Time*** and ***Date*** fields and clicking the ***Set to custom date & time*** button.

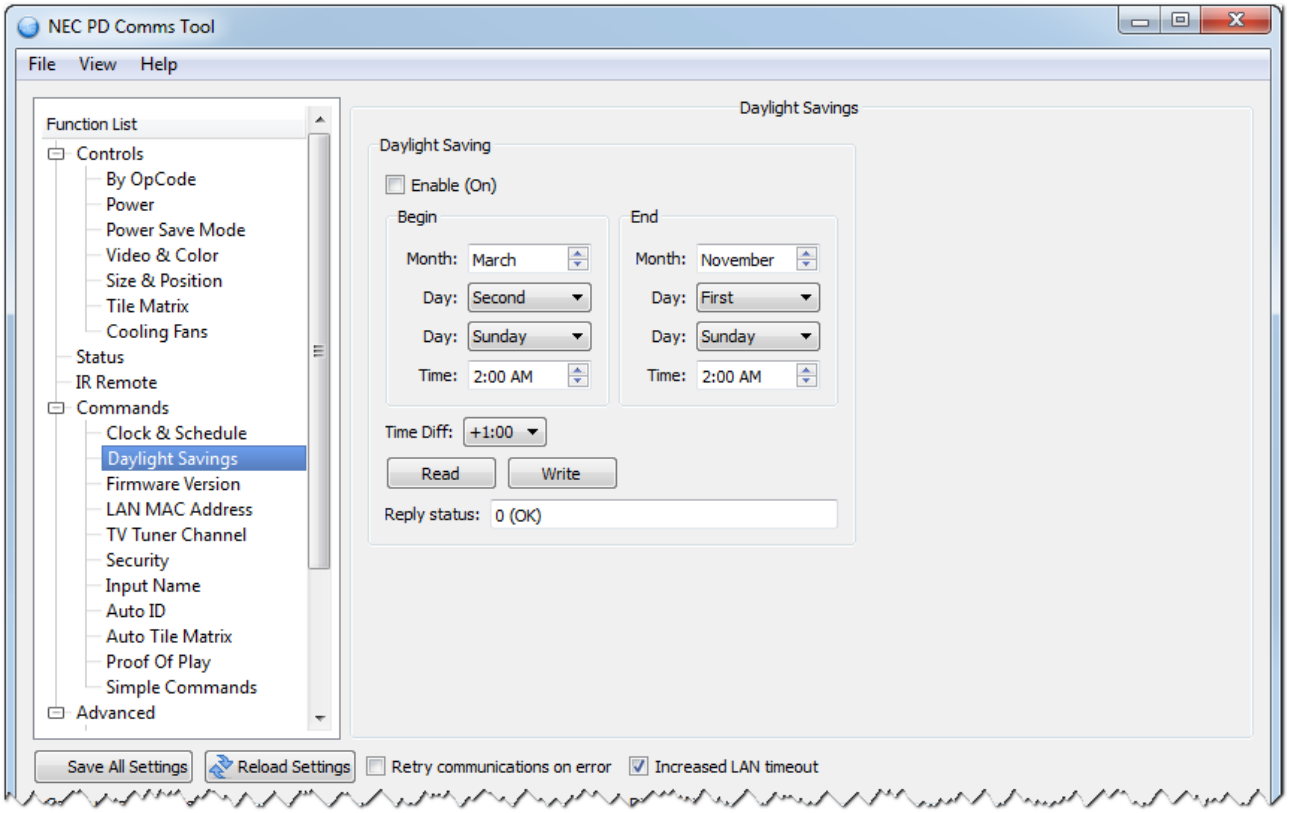
The current time and date of the clock in the display is shown.

Schedule

Different schedules are selected in the ***Program*** listbox. Each schedule can be enabled or disabled by selecting ***Enable***. ***On*** and ***Off*** times can be specified and enabled or disabled, as well the video ***Input*** and ***Picture Mode*** (if supported by the display). Settings are updated in the display by clicking the ***Update*** button.

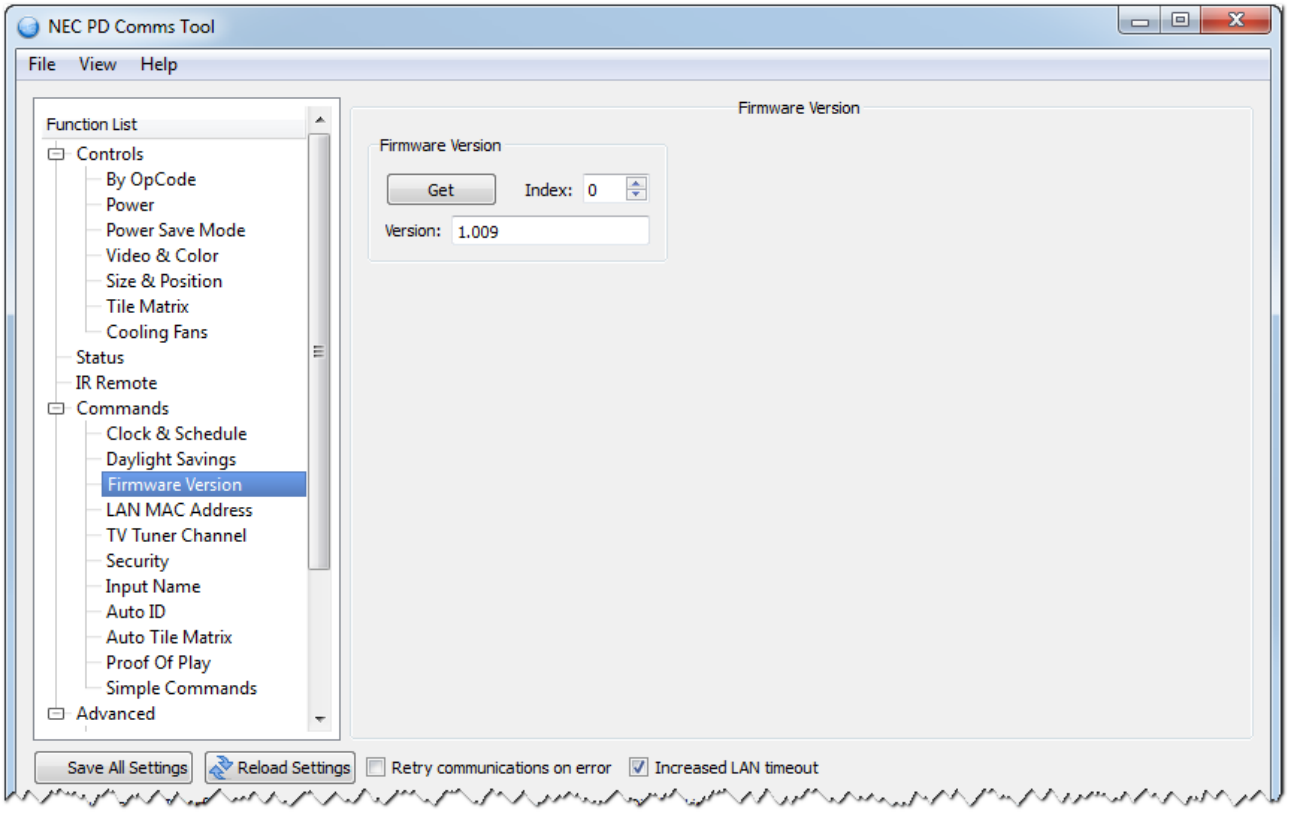
Commands - Daylight Savings panel

The ***Daylight Savings*** panel uses the daylight savings commands available on some display models to set the internal daylight savings parameters of display.



Commands - Firmware Version panel

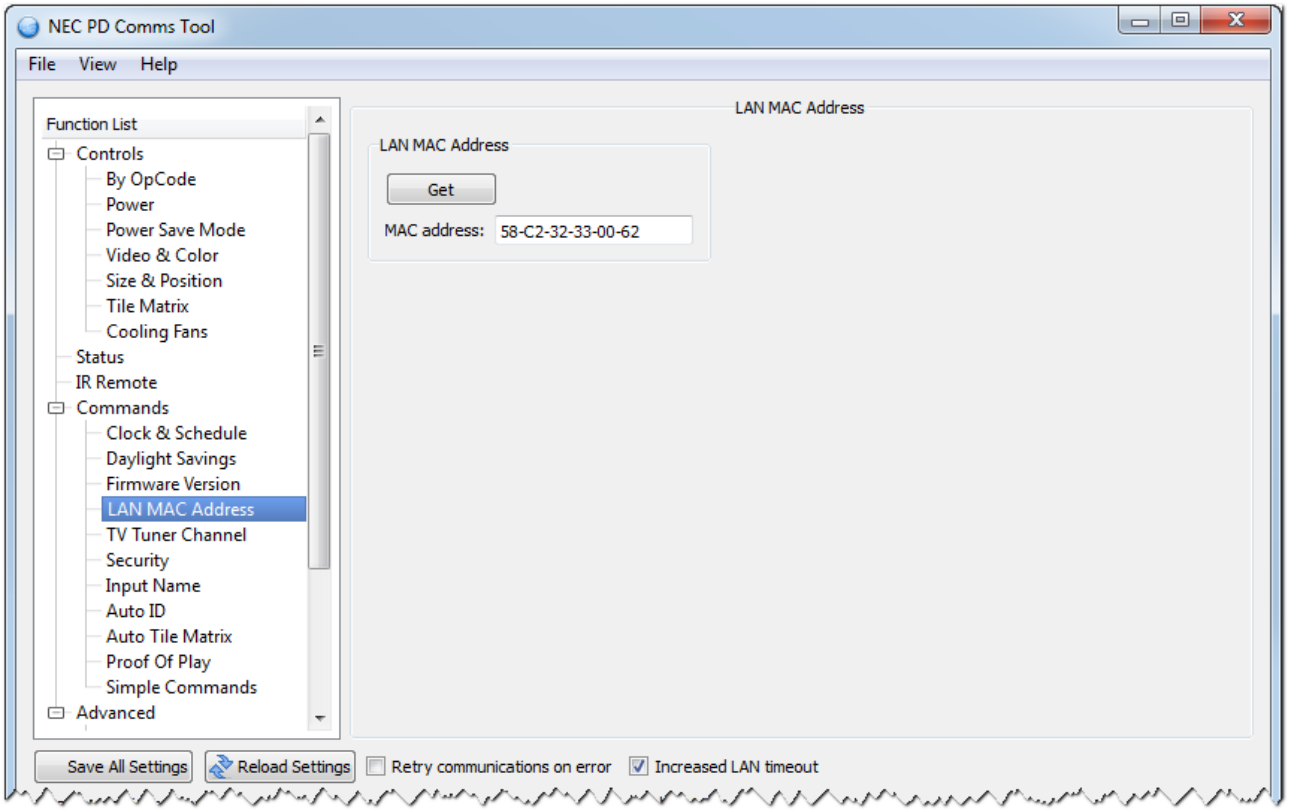
The ***Firmware Version*** panel uses the firmware version command to read the various firmware versions in the display.



The index control selects the particular sub-version to read. Firmware 1 version corresponds to Index 0.

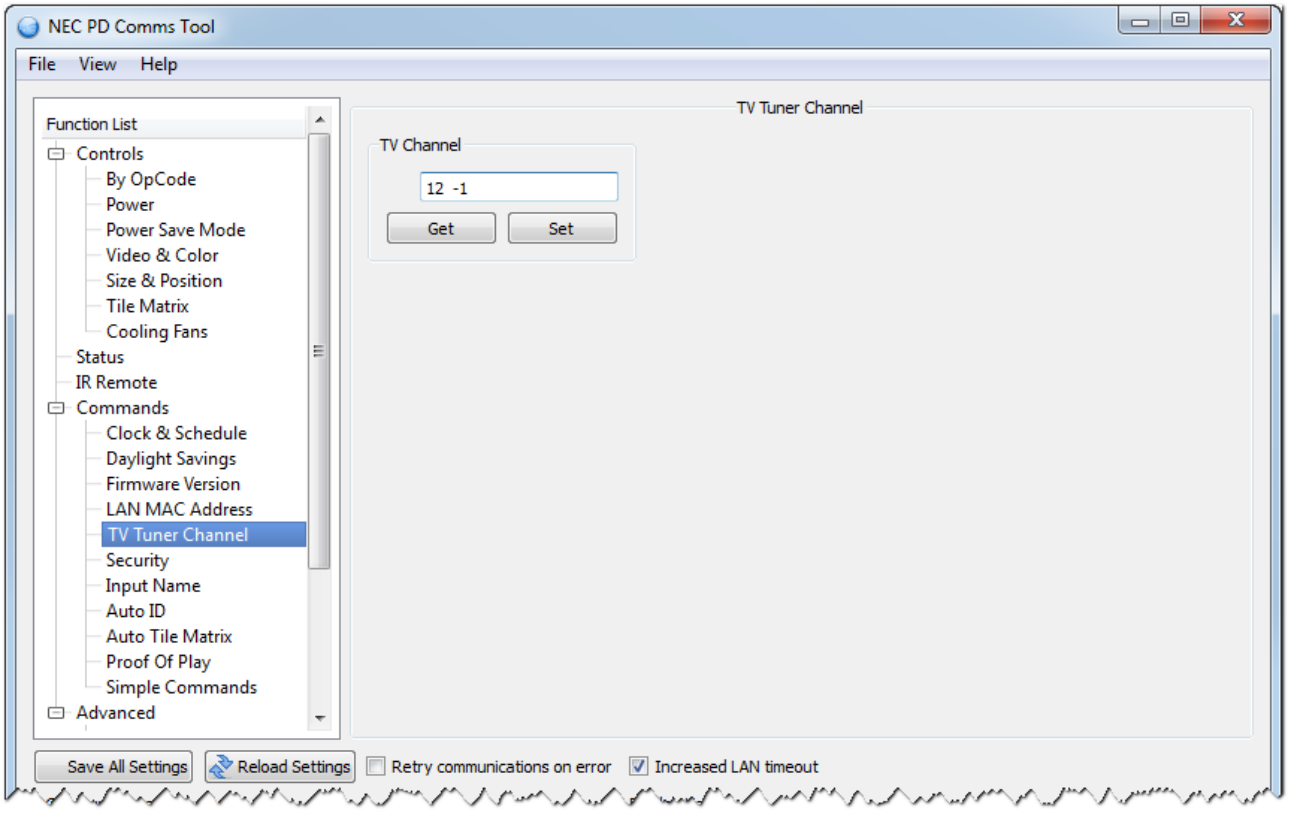
Commands - LAN MAC Address panel

The ***LAN MAC Adddress*** panel uses the MAC address command to read the LAN interface's MAC address.



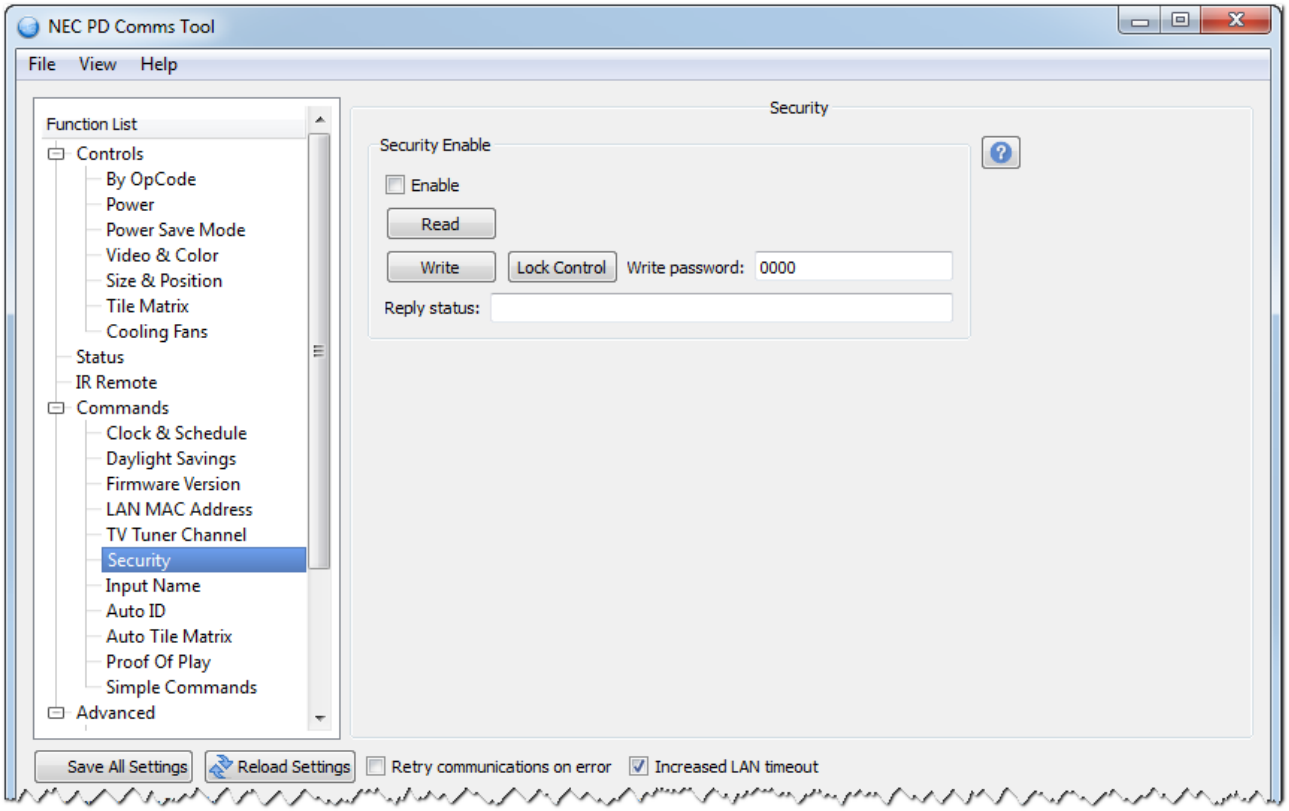
Commands - TV Tuner Channel panel

The ***TV Tuner Channel*** panel uses the TV tuner commands to read and write the current channel on models equipped with a TV tuner.



Commands - Security panel

The ***Security*** panel uses the security commands to read and write the current enable status of the security setting. If currently enabled, the correct password must be supplied in order to disable the security setting when using ***Write***.



Enabling Security will require that in order to use the display, the password be entered on the OSD using the IR remote after AC power is applied.

Once unlocked, the display will remain unlocked until AC power is removed and returned.

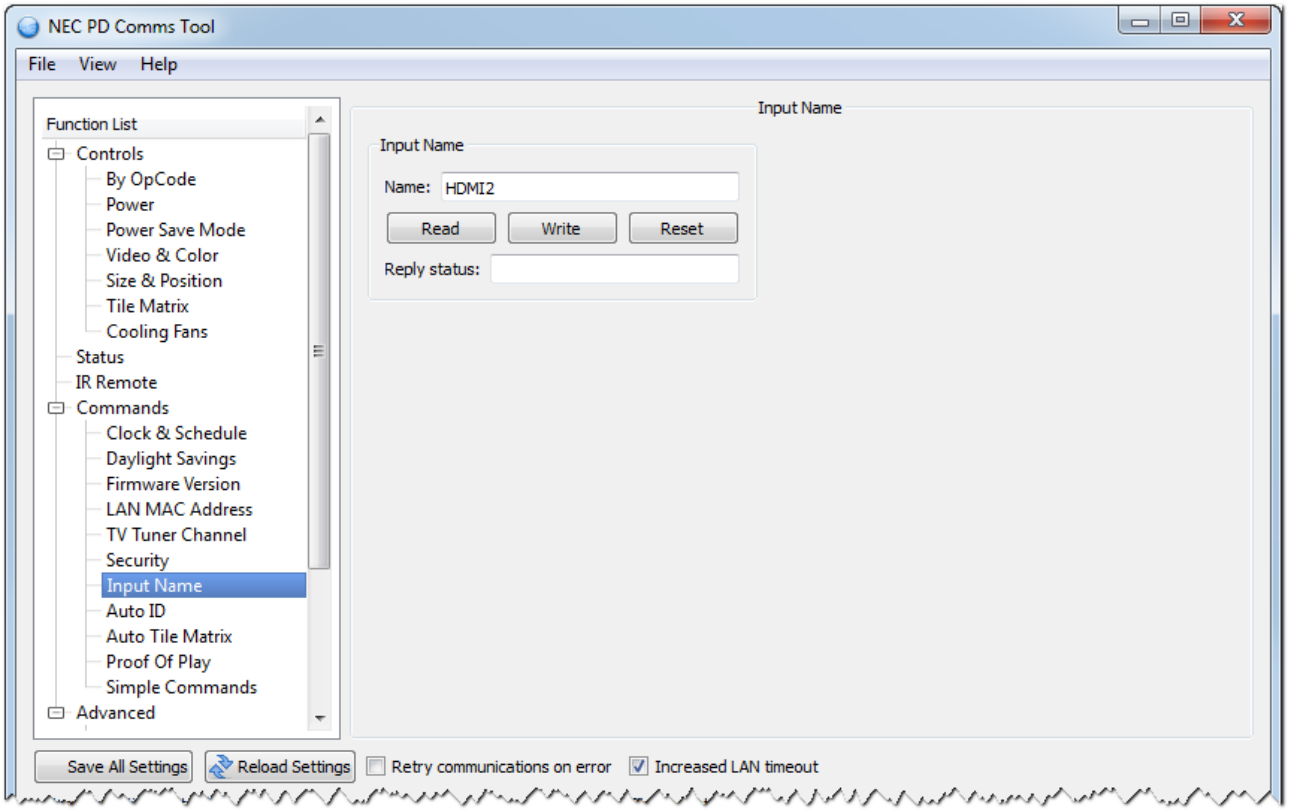
The password can be set via the OSD. On some models it can also be set via the display's web page.

Note: Do not forget the password! The password can only be reset be NEC service personnel. The default password is "0000".

Lock Control is a legacy command used on older models.

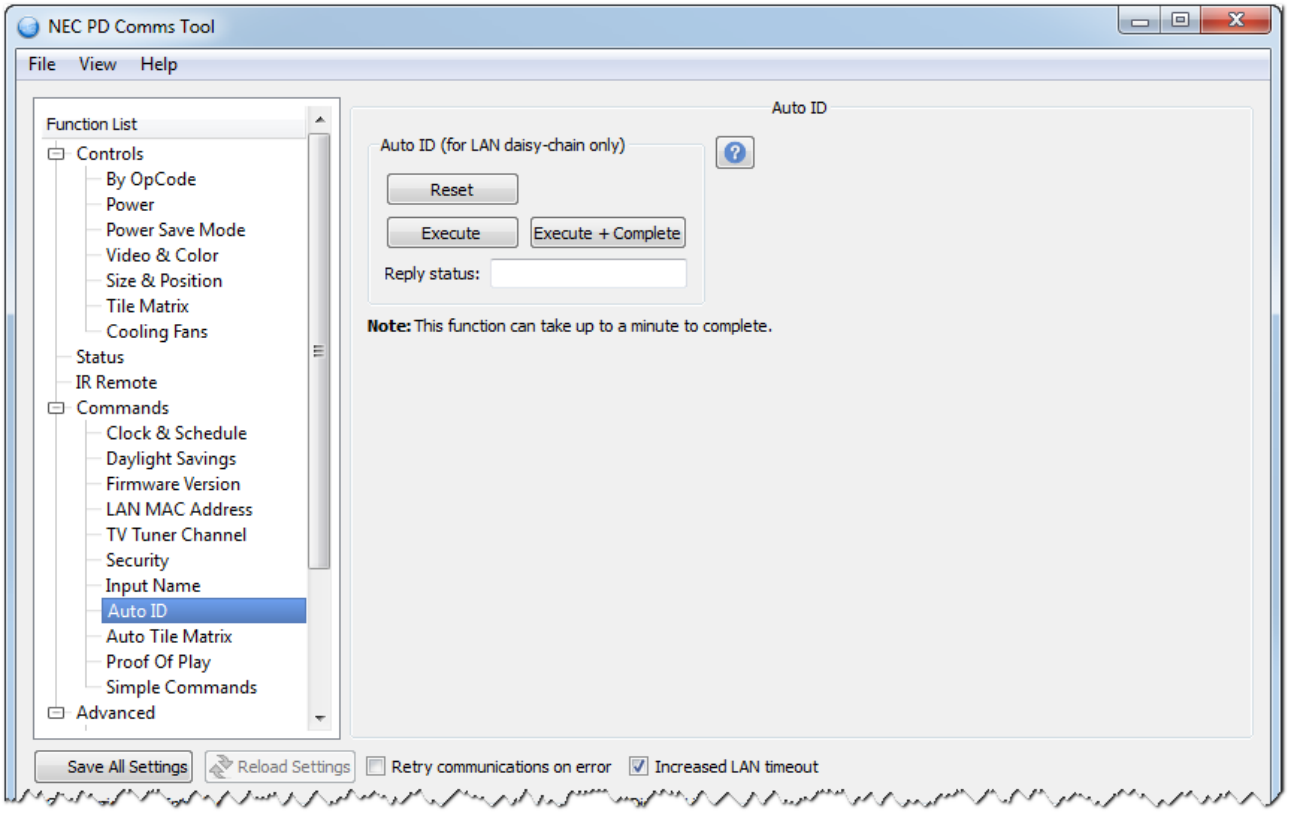
Commands - Input Name panel

The ***Input Name*** panel uses the input name commands to read, write, and reset the name of the current video input shown on the display's OSD.



Commands - Auto ID panel

The ***Auto ID*** panel uses the auto ID commands to reset and start the Auto ID process when multiple displays are daisy-chained via LAN.



When using the Auto ID function, be sure to select the ***Communications Interface*** settings to the first display in the LAN daisy-chain.

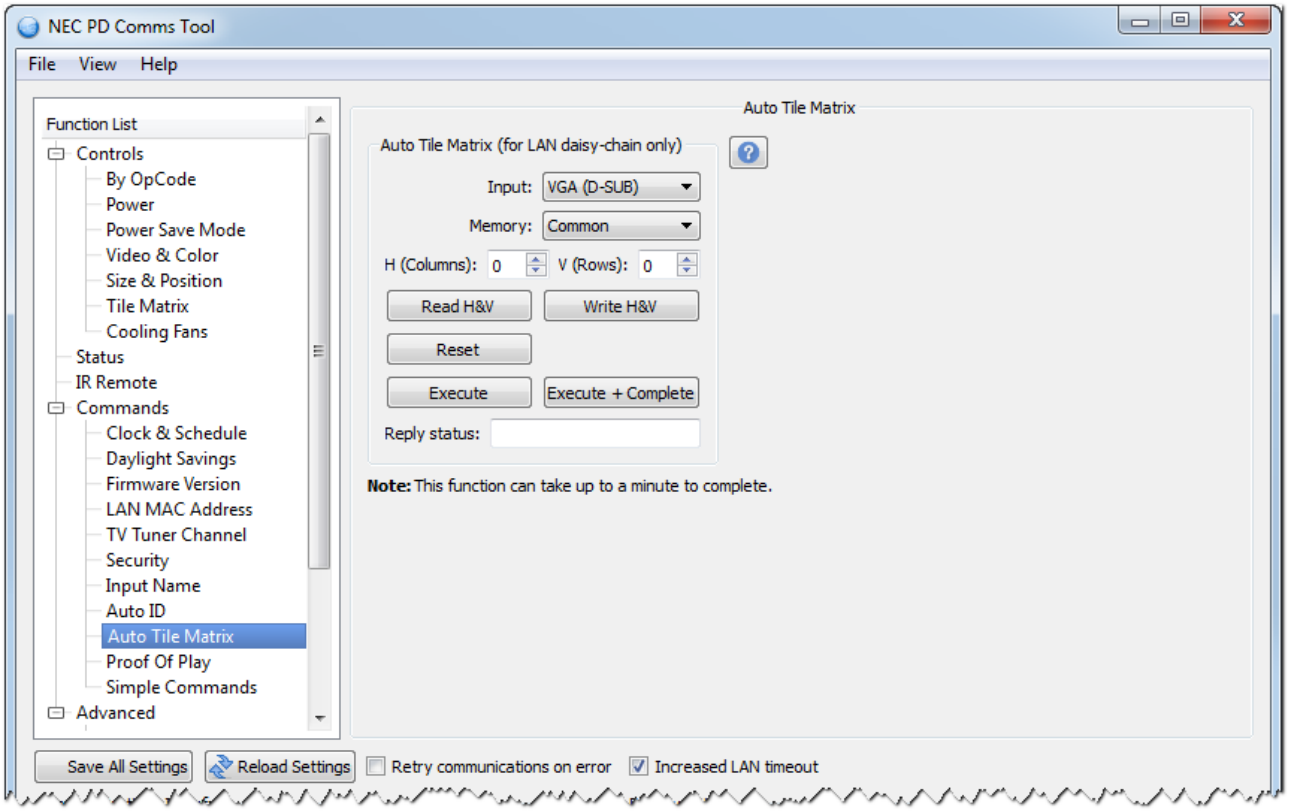
Note: The physical ordering of the LAN cables determines the order in which Monitor IDs are assigned.

Note: The correct LAN connections on each display must be used. LAN1 is the input to the display. LAN2 is the output that connects to the LAN1 input of the next display in the daisy-chain.

Execute + Complete will start the Auto ID process and wait for the reply from the display. Note that it may take up to a minute to complete in some cases.

Commands - Auto Tile Matrix panel

The ***Auto Tile Matrix*** panel uses the auto tile matrix commands to reset and start the Auto Tile Matrix process when multiple displays are daisy-chained via LAN.



When using this function, be sure to select the ***Communications Interface*** settings to the first display in the LAN daisy-chain. All of the displays in the daisy-chain should be powered on.

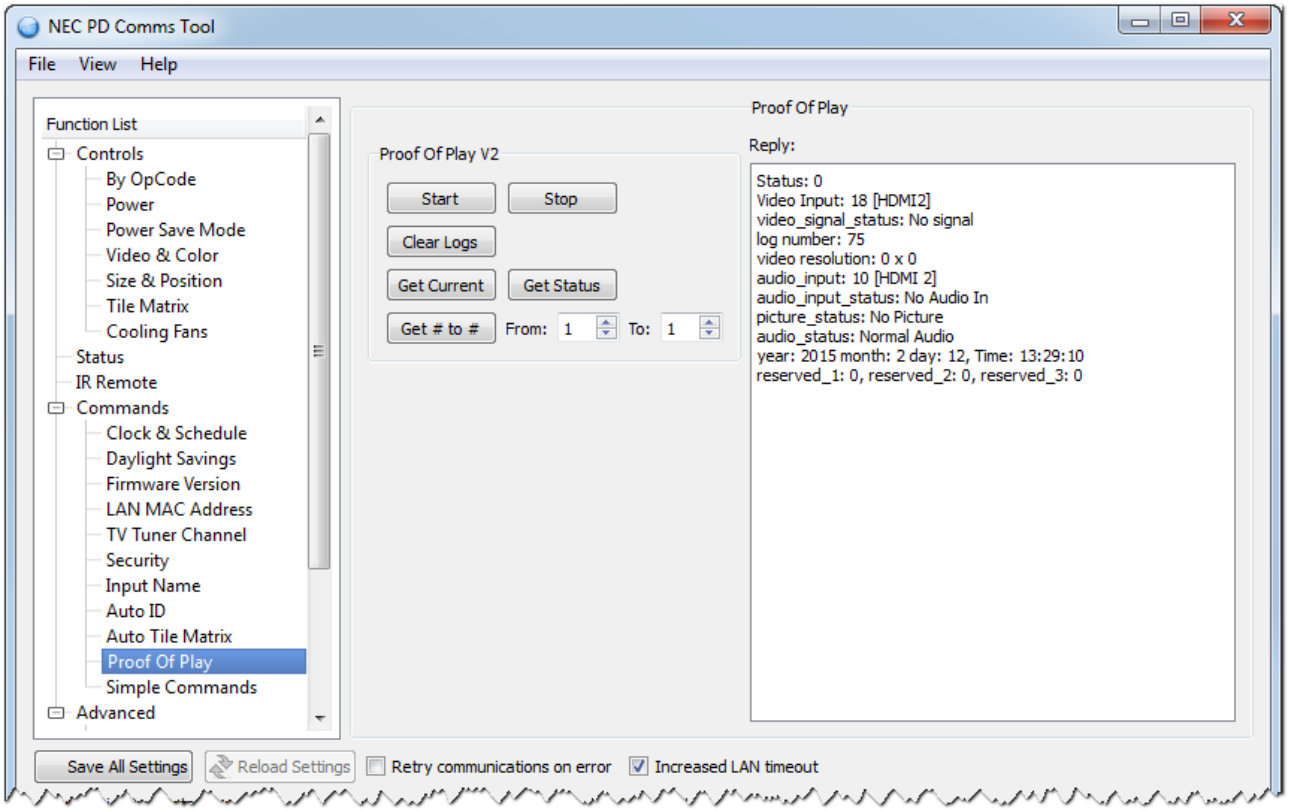
Note: The physical ordering of the LAN cables determines the order in which Monitor IDs are assigned.

The tile matrix width will be set according to the number of columns selected, and the height will be set according to the number of rows selected. Positions will be set starting with the top left display. See the display's User's Guide for more information.

Execute + Complete will start the Auto Tile Matrix process and wait for the reply from the display.

Commands - Proof Of Play panel

The ***Proof Of Play*** panel uses the proof of play commands to start, stop, and read the logs from the display.

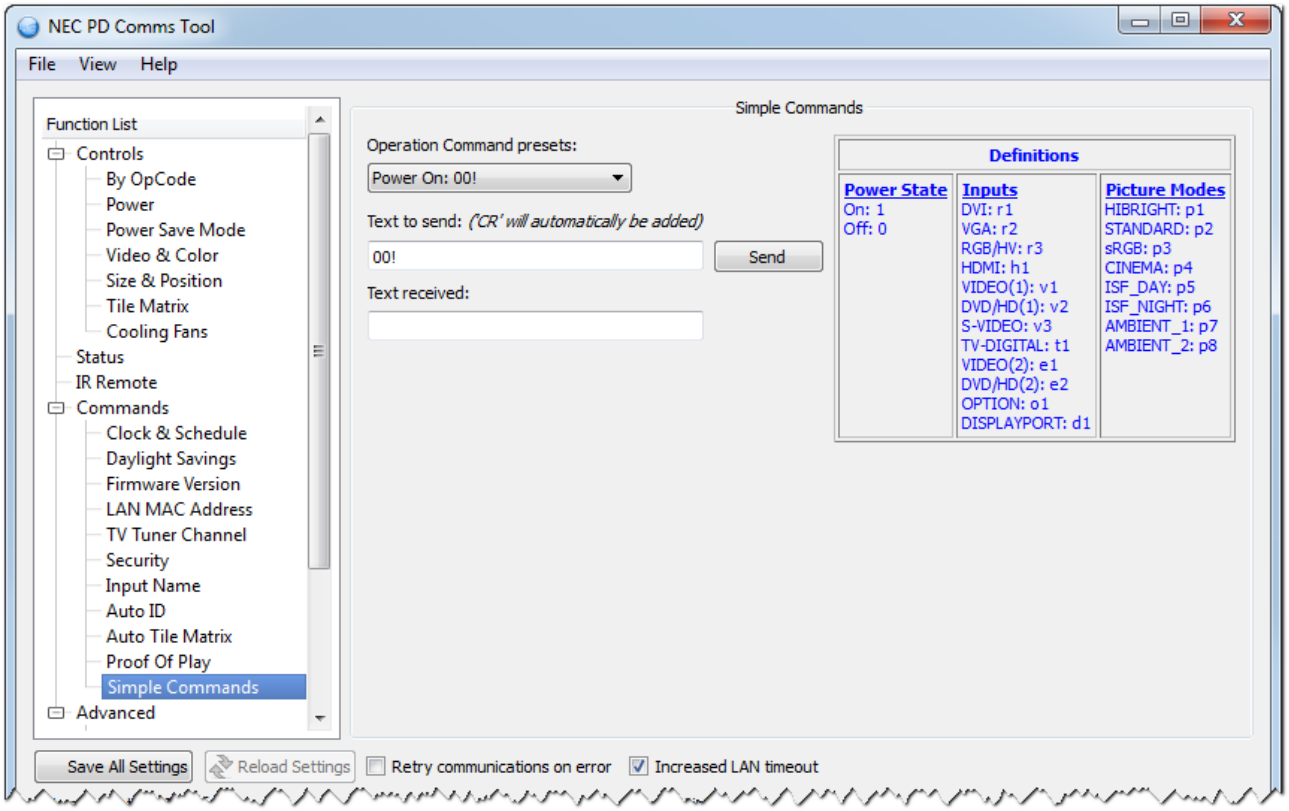


The Proof Of Play logs are cleared when AC power is lost. On some models the logs are also cleared when the display enters standby (power saving) mode.

Note: Currently the From and To settings must be the same value. So only a single log can be read per command.

Commands - Simple Commands panel

The ***Simple Commands*** panel can be used to send simplified commands to the display.



These commands (if supported by the display) can be used to control the power state, video input and picture mode. They are intended as a simple alternative to the more complex commands used elsewhere which require calculating a checksum etc.

These simple commands do not support the concept of a Monitor ID.

Select a command from the ***Operation Command presets*** list.

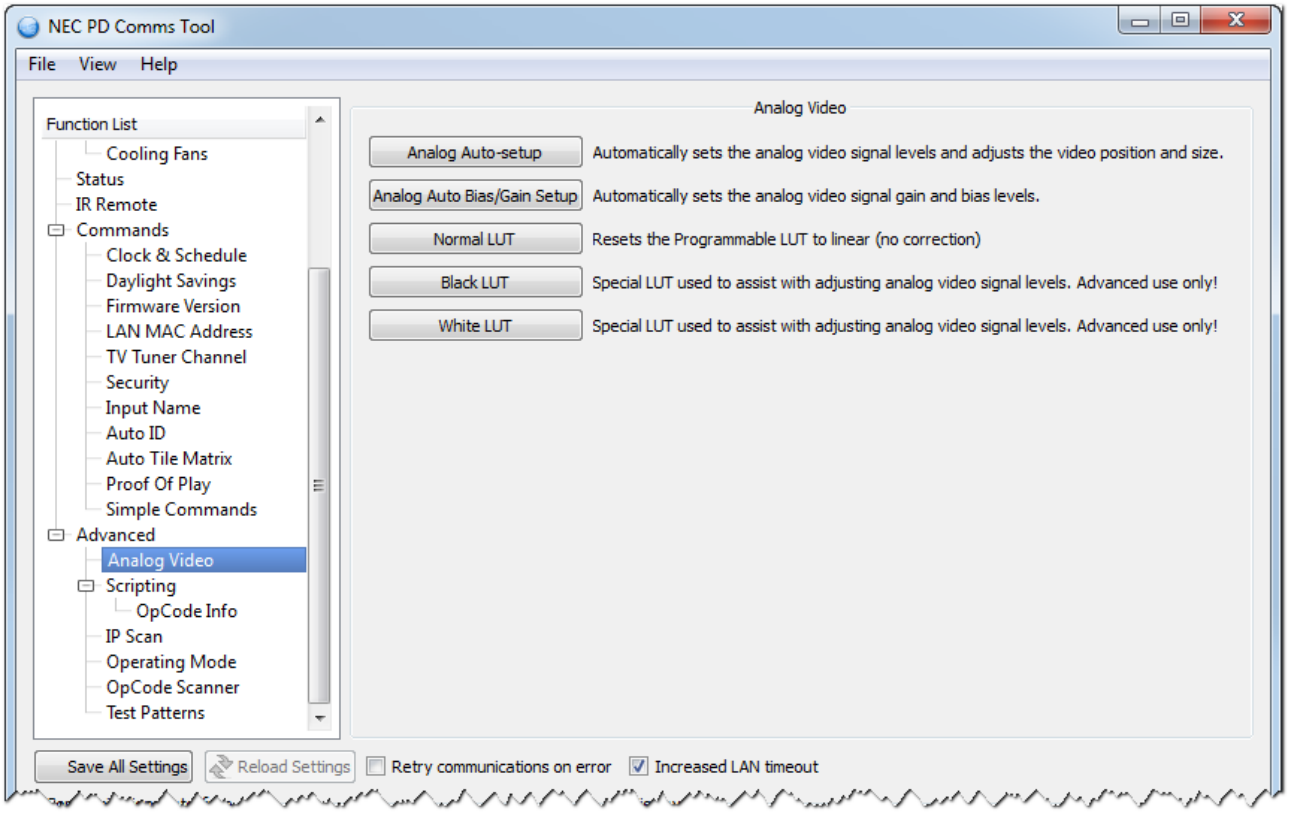
The text that will be sent to the display is shown in the ***Text to send*** area.

Click ***Send*** to send the command.

The reply from the display will be shown in the ***Text received*** area.

Advanced - Analog Video panel

The ***Analog Video*** panel can be used to make advanced adjustments to the internal analog-to-digital converters of the display.



These controls are only available when analog video inputs such as VGA, RGB/HV, and Option-Analog.

Analog Auto-Setup will measure the incoming analog video signal and automatically set the video level controls in the display as well as the size and position of the video.

This operation should only be necessary whenever a new analog video signal is connected, when a major change is made to the video wiring to the display, or when a video amplifier or splitter is added to the video link.

Note: *It is essential that when this operation is performed a video signal that contains both pure black and pure white is being input. White video should extend to each edge of the active video area, otherwise the controls may not be adjusted correctly by the display. A sample test pattern is installed with the software and should be displayed full-screen on the video source input.*

Analog Auto Bias/Gain Setup will measure the incoming analog video signal and automatically set the video level bias and gain controls in the display.

This operation should be performed if there is a color tint on black video.

Note: *It is essential that when this operation is performed a color bar test pattern video signal is input, otherwise the controls may not be adjusted correctly by the display. A sample test pattern is installed with the software and should be displayed full-screen on the video source input.*

The following functions are considered advanced and should only be used if instructed by NEC personnel.

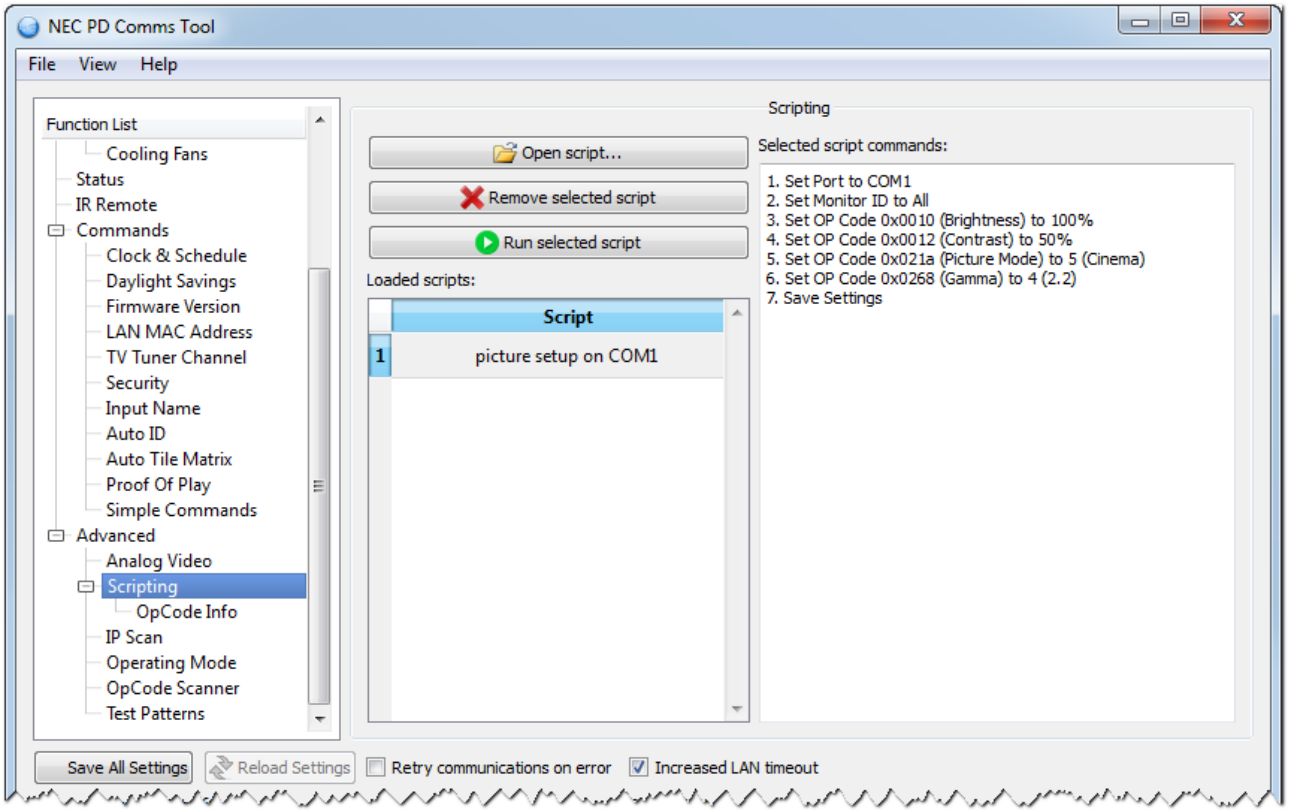
Normal LUT - Resets the Programmable LUT (if supported) to linear.

Black LUT - Creates a special LUT used to assist with adjusting analog bias.

White LUT - Creates a special LUT used to assist with adjusting analog gain.

Advanced - Scripting panel

The ***Scripting*** panel is used to load, select and run script files.



The scripting function allows complex command sequences to be performed on multiple displays via a powerful but simple scripting language. Script files are simple text files that can be edited with any text editing application.

A script file contains a list of commands to perform, as well as optional Communications Interface settings. If a Communications Interface setting is not specified, the commands in the script file will be performed using the current Communications Interface settings.

One or more scripts can be loaded in the application by clicking the ***Open script...*** button.

When a script is loaded, it is expanded into individual commands which are shown in the "Selected script commands" list.

A script can be run either by double clicking the script in the list, or selecting the script and clicking the ***Run selected script*** button.

As the script runs, each command will be shown in either green or red, indicating the success or failure of the command operation.

The following scripting commands are supported:

- **SETPORT -** Sets the Communications Interface settings. Either LAN or RS232 can be used. All subsequent operations will be performed using these settings.
- **FOREACHPORT -** Allows operations to be performed on multiple IP addresses

- **SETMONITORID -** Sets the Monitor ID of the display(s) to perform commands on.
- **SETPOWER -** Sets the power status of the display(s).
- **SETDATETIME -** Sets the internal clock on the display(s) to the current system date and time.
- **SETOPCODE -** Sets the value of an Op Code control.
- **WAIT -** Pauses between commands.
- **SENDIR -** Sends a sequence of IR Remote commands equivalent to pressing the buttons on the IR Remote.
- **SCHEDULE -** Sets the various settings for each of the schedules in the display(s).

Note: *A single script can also be automatically run by specifying the script file name as a parameter on the command line used to launch the application. Once the script has completed, the application will automatically close.*

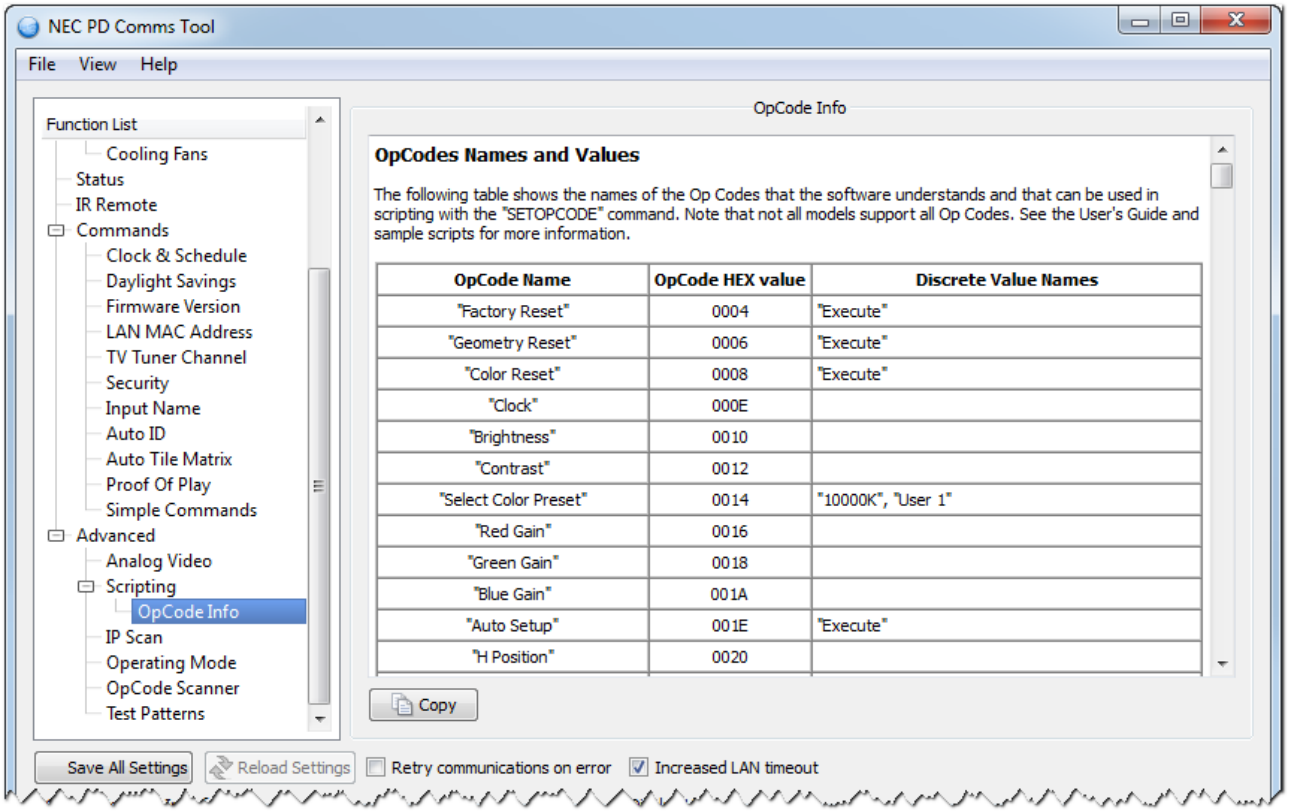
For example from a command line:

```
NECPDCommsTool.exe "c:\my scripts\script 1.txt"
```

See the "Scripting Language" on page 42 for a detailed explanation of the script file syntax and examples.

Advanced - Scripting - OpCode Info panel

This panel lists in a table all of the currently supported OpCodes names that can be used in scripting with the "SETOPCODE" command. OpCode names can be used instead of a hexadecimal OpCode value in order to make scripts easier to read. The table also lists all of the discrete values names that can be used for specific OpCodes.



Important notes:

- Not all display models support all Op Codes.

- Some Op Codes are only supported in certain operating modes.
- Displays may support additional Op Code names not listed in this table. In this case use the Op Code HEX value.
- For controls that have discrete values such as "on" and "off", the supported names are listed. These names can be used in scripts to set the value of an Op Code control instead of using a numerical value.
- For other types of controls that don't have discrete values, such as Brightness, either a value or percentage can be used.
- This list is not intended to be used as a replacement for the codes listed in a display's External Control specification document.

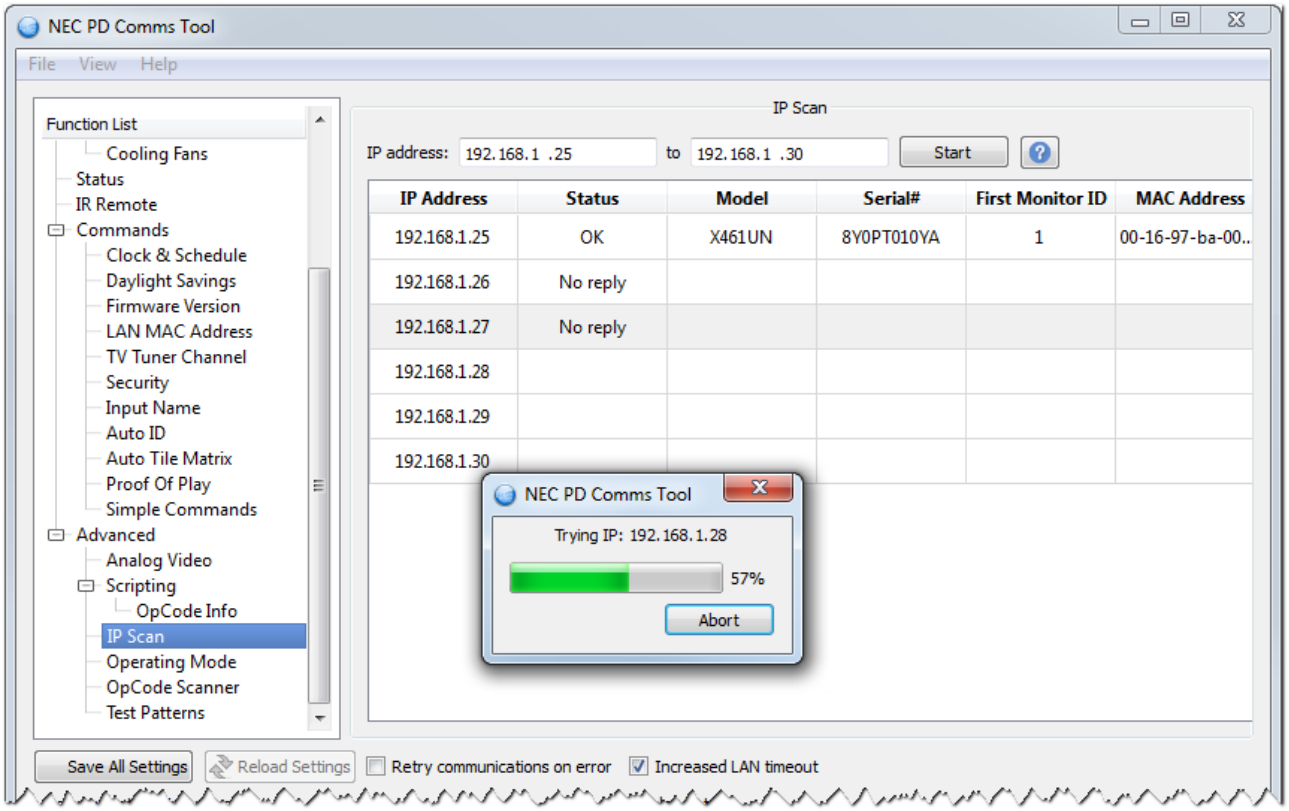
As an example, to set the Video input to HDMI, first look for the Op Code name. Next look along that row for the supported discrete value names. Then use them in the script as with the following example:

```
SETOPCODE "Input" to "HDMI"
```

Be sure to include the quotation marks around both the Op Code Name and Discrete Value Name.

Advanced - IP Scan panel

The ***IP Scan*** panel is used to scan a range of IP addresses and check to see if there is a display with a LAN interface on each IP address, and if it is responding correctly. This is similar to a "ping" function.



If a display LAN interface is detected, it will attempt to query the display for a model name, serial number and Monitor ID. If the display is being used on an RS232 daisy chain, the ***First Monitor ID*** will show the Monitor ID of the first display on the daisy chain.

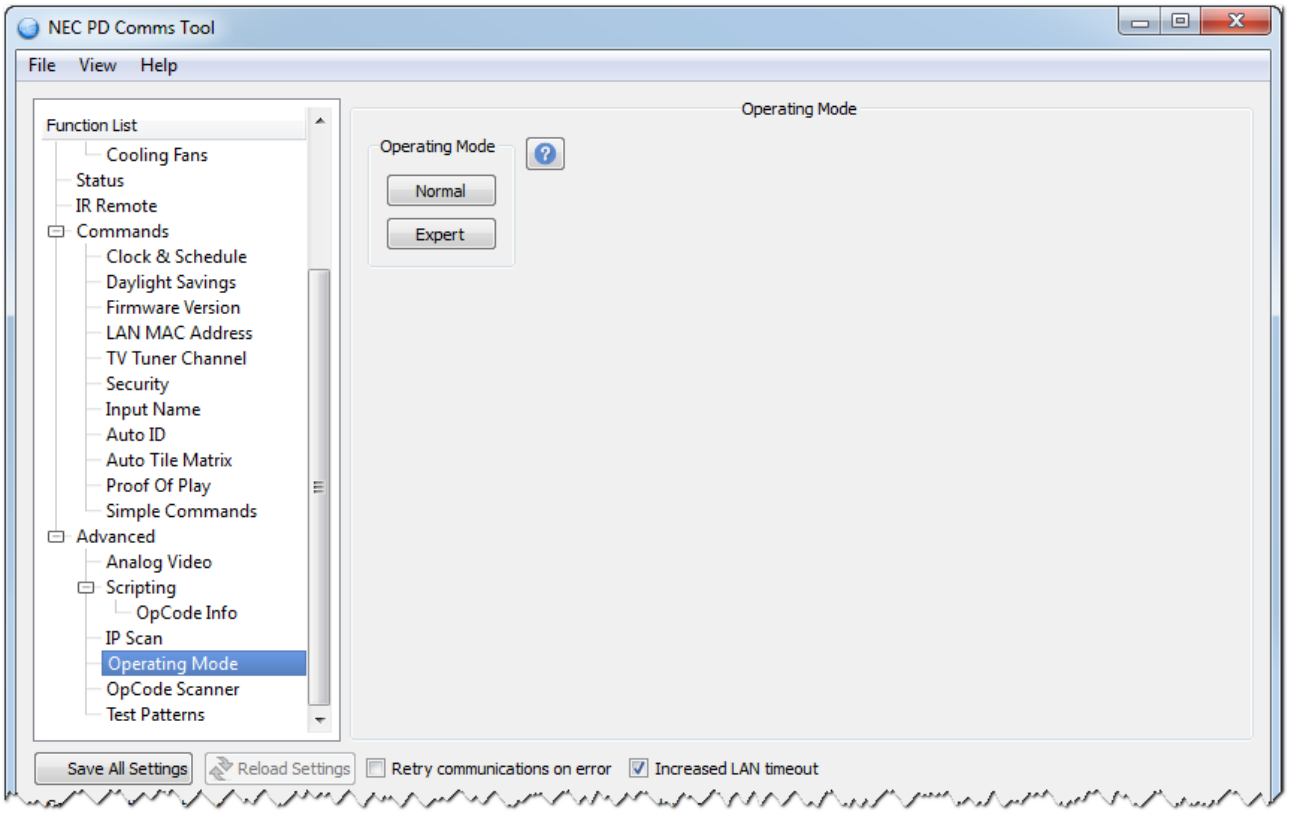
Enter the starting and ending IP addresses to sequentially scan and click the ***Start*** button to begin the scan. The results of each IP scanned will be shown on the list.

See the troubleshooting section if communications with the display is unable to be established.

The ***MAC Address*** shows the Ethernet LAN MAC address of the device at each IP address (MAC address is not available on Mac OS version).

Advanced - Operating Mode panel

The ***Operating Mode*** controls can be used to change the current adjustment mode of the monitor's OSD (On Screen Display), and allow access to several advanced controls.

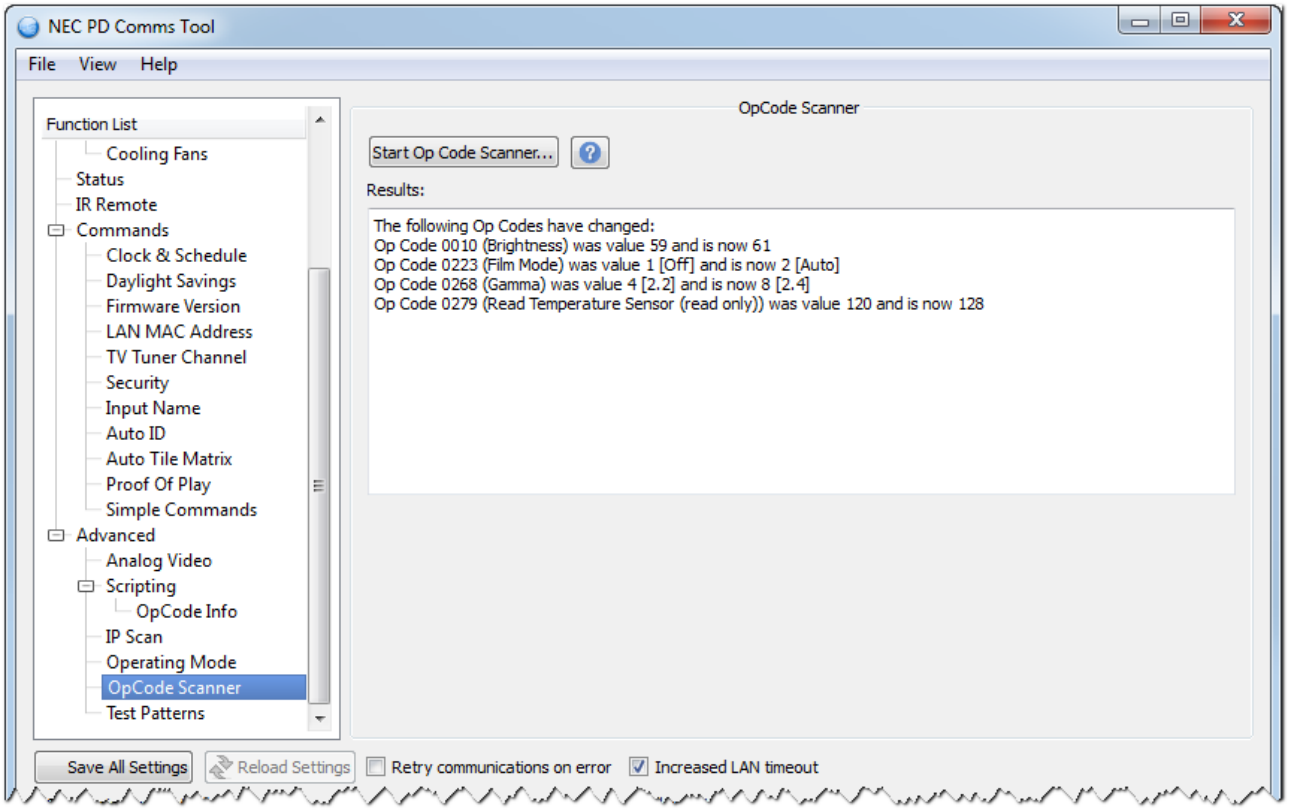


Note: Only use this control if instructed to do so by NEC personnel. Always return the Operating Mode back to Normal when completed.

Advanced - OpCode Scanner panel

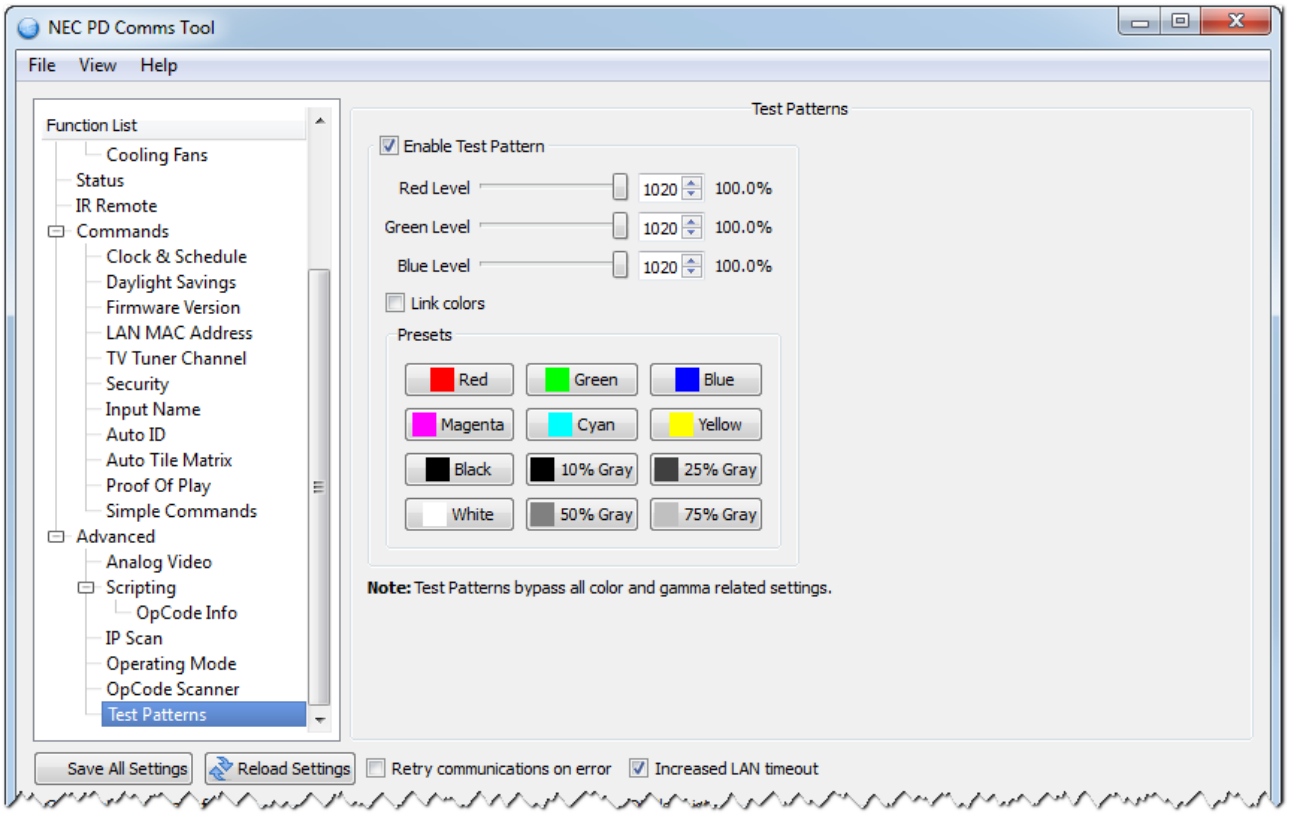
The ***OpCode Scanner*** function scans all available Op Codes to find out which ones have changed in value. This is useful for example to find out the Op Code of an unknown control, or to find out what other controls change when an operating mode is changed.

It works by first reading all of the Op Code values. Next the control setting should be changed via the display's OSD. Then it will re-read all Op Code values and report any differences.



Advanced - Test Patterns panel

The ***Test Patterns*** function enables the display's internal test pattern generator. This is useful when it is necessary to evaluate the display screen independently of any video source signal.



Note: When enabled all video input signals, color and gamma related controls and settings are bypassed. Be sure to disable the test pattern when completed.

The red, green, and blue levels can be set individually using the slider controls. They can be linked together in value to allow gray levels to be selected quickly.

Several preset colors are available using the preset buttons.

Chapter 3

Frequently Asked Questions

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Chapter 4

Troubleshooting

Problem: *Test Communications Interface* operation fails.

Solution: Check that:

- Each display is correctly configured to use either then LAN or RS232 interface by confirming the EXTERNAL CONTROL setting on the OSD menu (for models that support RS232 daisy-chaining). Newer models that support LAN daisy-chaining don't have this setting.
- The MONITOR ID is set correctly on the OSD and matches the value assigned in the software.

If using RS232:

- If using daisy-chaining, confirm that no other displays on the same chain have the same MONITOR ID.
- Make sure that each display is connected via a NULL modem cable and that the correct IN our OUT socket on the display is used.
- Make sure that no other application or process is using the specified COM port.

If using LAN:

- Make sure that the IP address of each display is set correctly and that each display has a unique IP address.
- Make sure that the IP address assigned to each display matches those assigned in the software.
- Make sure that no other device on the LAN is assigned the same IP address.
- The IP address of each display must be configured using a web browser. The default IP address is 192.168.0.10.
- Make sure that the displays are on the same subnet as the host PC being used.
- Make sure that there are no firewall settings or antivirus applications that may be preventing the application from accessing the LAN. Displays communicate using Port 7142.
- Try resetting the LAN settings from the OSD.
- If using LAN daisy-chaining, make sure that LAN 2 (output) connects to the LAN 1 (input) on the next display in the daisy-chain. The start of the daisy-chain should be to LAN 1 (input).

- Try resetting the monitor power.

Chapter 5

Scripting Language

This chapter describes the format and syntax of the scripting language.

A script file is a simple text file that can be created and edited with any text editing application. Save the file with a .txt extension. When a script file is loaded into the application, it will be parsed and any errors in the script will be reported.

Within the script file:

- Each command in the script must appear on a new line.
- Blank lines are allowed.
- Comment lines can be used by adding # as the first character on each line.
- Multiple displays and operations can be specified in a script file.

Various commands are supported as follows:

SETPORT command

This command sets the RS232 COM port, or IP address of the display to communicate with.

Note: *If no port or IP address is specified, then the port currently selected in Communications Interface will be used.*

To specify an RS232 COM port use the following syntax where xx is the COM port number (e.g. COM1)

```
SETPORT COMxx
```

To use a TCP/IP address use the following syntax, where xxx.xxx.xxx.xxx is a numerical IP address in decimal format:

```
SETPORT xxx.xxx.xxx.xxx
```

Examples:

```
SETPORT 192.168.0.10
SETPORT COM3
```

FOREACHPORT command

This command allows operations to be performed on a range of IP addresses. If multiple displays are used, and they have sequential IP addresses assigned, this command can be used to perform operations on each, rather than specifying each IP address individually using the SETPORT command.

This command consists of a FOREACHPORT, and a matching ENDFOREACHPORT command. Any commands specified between these lines will be performed on each of the IP addresses in the specified range.

Use the following syntax to specify an IP address range where xxx.xxx.xxx.xxx and yyy.yyy.yyy.yyy are numerical IP

addresses in decimal format:

```
FOREACHPORT xxx.xxx.xxx.xxx TO yyy.yyy.yyy.yyy
# commands to perform on each IP address.
ENDFOREACHPORT
```

Example:

```
FOREACHPORT 192.168.0.10 TO 192.168.0.20
SETMONITORID "All"
SETPOWER ON
ENDFOREACHPORT
```

Sets the Power to On for all displays between the specified IP addresses.

SETMONITORID command

This command sets the Monitor ID of the display(s) to perform commands on. Use the following syntax to specify the Monitor ID where xx is a specific ID number, or "All", or groups such as "Group A".

```
SETMONITORID xx
```

When using "All" or "Group x", the text must be enclosed by "". For example: SETMONITORID "All"

Examples:

```
SETMONITORID 1
SETMONITORID "All"
SETMONITORID "Group A"
```

SETPOWER command

This command sets the power status of the display(s). Use the following syntax where xx is either ON, OFF, or STANDBY.

```
SETPOWER xx
```

Examples:

```
SETPOWER ON
SETPOWER OFF
SETPOWER STANDBY
```

SETDATETIME command

This command sets the internal clock on the display(s) to the current system date and time. The syntax is as follows:

```
SETDATETIME
```

SETOPCODE command

This command sets the value of an Op Code control. Use this to change a control setting in the display. Most controls are accessed using this command. Several different syntax formats are available for convenience and readability. The syntax of the command is:

`SETOPCODE opcode TO value`

`opcode` is the Op Code control to be changed, and can be specified either as:

- A 4 digit HEX value either in the format "0xZZZZ" or "ZZZZ" (where ZZZZ is the 4 digit HEX Op Code)
- A control name enclosed by "" (for example "Brightness")

Hint: *The names of each Op Code can be found in the* ***Op Code Control Name*** *list on the* ***Controls*** *tab.*

`value` is the value to set the Op Code to, can be specified either as:

- An absolute value such as 50.
- A percentage value by adding "%" after the value (for example: 100%)
- A named value for certain discrete controls. For example "On" and "Off". The named value must be enclosed by "".

Note: *The named values for an Op Code control can be found in the* ***Value Setting*** *list when the desired Op Code control is selected on the* ***Controls*** *tab. Also see the list of supported Op Code Names and Values on the Scripting - OpCode panel (see "Advanced - Scripting - OpCode Info panel" on page 34).*

Examples:

`SETOPCODE 0x0012 to 0`

Sets the Contrast (Op Code 0x0012) to absolute value 0.

`SETOPCODE "Contrast" to 100%`

Sets the Contrast to 100%.

`SETOPCODE "Contrast" to 10`

Sets the Contrast to absolute value 10.

`SETOPCODE "Input" to "HDMI"`

Sets the video input to HDMI.

WAIT command

This command pauses between commands, and is used when it is necessary to allow the display time to perform some action before proceeding with the next command. Use the following syntax to specify the wait time where xx is a delay time specified in milliseconds.

`WAIT xx`

Examples of when it is usually necessary to have a pause are:

- When turning the display on or off
- When changing video inputs

- When performing a setting reset

The length of time to wait will vary by model, but typically powering on or off the display can take up to 10 seconds. Changing inputs can take 5 seconds, and performing a reset can take 3 seconds.

If a command in the script fails it may be because the monitor is still processing the previous command. In this case try adding a WAIT delay before the failing command.

Example:

```
WAIT 1000
```

Waits for 1s (1000 ms)

SENDIR command

This command sends a sequence of IR Remote commands equivalent to pressing the buttons on the IR Remote. Each button press is encoded as a 2 digit HEX value. Multiple IR Remote commands can be sent by adding a space between each HEX value.

Use the following syntax to specify the IR command(s) to send, where xx is one or more hex codes separated by spaces:

```
SENDIR xx yy
```

Hint: Use the ***IR Remote*** tab to find out the HEX codes for each IR Remote button.

Example:

```
SENDIR 08 0A 44 08 45
```

Sends the IR Remote commands corresponding to the buttons "1", "3", "-", "1" and "Ent".

SCHEDULE command

This command sets the various settings for each of the schedules in the display(s). Display models that support the Schedule function have an internal clock and timer which can be used to perform certain operations on specific days and times, such as changing inputs, or powering on or off.

This command will modify the existing settings in the specified schedule and only the specified settings will be changed.

For example if you only want to modify the power ON time, it is only necessary to specify this, and not all of the other settings.

Existing settings can be "cleared" or "set" if necessary.

The first parameter is the schedule number. This is a number in the range 1-7 and corresponds to the schedule on the display to modify.

The parameters following this allow the Power On Time ("ONTIME"), Power Off Time ("OFFTIME"), Video Input ("INPUT") and Picture Mode ("PICTUREMODE") to be specified, as well as Enabling ("ENABLE") or Disabling ("DISABLE") the entire schedule. Also the Every Day ("EVERYDAY"), Every Week ("EVERYWEEK"), and days of the week (e.g. "MONDAY", "TUESDAY" etc.) can be SET or CLEARED.

IMPORTANT NOTE: *This command only modifies the specified settings, and keeps other existing schedule settings. So for example if the "Monday" setting was already set it the display, and the "Tuesday" setting was set in the script, then both Monday and Tuesday would be set after running the script. Use the CLEAR parameter to unset other settings if necessary.*

Use the following syntax to specify the schedule parameters, were x is the schedule number to set, and pppp is a list of the parameters to change.

`SCHEDULE x pppp`

All of the parameters for a particular schedule number are entered on a single line, with settings separated by a space.

Valid parameters are as follows and can be combined together on one line:

`ENABLE` - enables the specified schedule

`DISABLE` - disables the specified schedule

`EVERYDAY SET` - sets the Every Day setting for the schedule

`EVERYDAY CLEAR` - clears (unsets) the Every Day setting for the schedule

`EVERYWEEK SET` - sets the Every Week setting for the schedule

`EVERYWEEK CLEAR` - clears (unsets) the Every Week setting for the schedule

`MONDAY SET` – sets the Monday setting for the schedule

`MONDAY CLEAR` - clears (unsets) the Monday setting for the schedule

`TUESDAY SET` - sets the Tuesday setting for the schedule

`TUESDAY CLEAR` - clears (unsets) the Tuesday setting for the schedule

`WEDNESDAY SET` - sets the Wednesday setting for the schedule

`WEDNESDAY CLEAR` - clears (unsets) the Wednesday setting for the schedule

`THURSDAY SET` - sets the Thursday setting for the schedule

`THURSDAY CLEAR` - clears (unsets) the Thursday setting for the schedule

`FRIDAY SET` - sets the Friday setting for the schedule

`FRIDAY CLEAR` - clears (unsets) the Friday setting for the schedule

`SATURDAY SET` - sets the Saturday setting for the schedule

`SATURDAY CLEAR` - clears (unsets) the Saturday setting for the schedule

`SUNDAY SET` - sets the Sunday setting for the schedule

`SUNDAY CLEAR` - clears (unsets) the Sunday setting for the schedule

`INPUT xxxxx` - sets the Video Input to xxxx. Either a numerical value or a name can be specified.

Valid Input names are as follows:

```
VGA
RGB/HV
DVI
VIDEO1
VIDEO2
S-VIDEO
TV
DVD/HD1
OPTION
DVD/HD2
```

DISPLAYPORT

HDMI

PICTUREMODE xxx - sets the Picture Mode to xxxx. Either a numerical value or a name can be specified.

Valid Picture Mode names are as follows:

LASTSETTING

SRGB

HIBRIGHT

STANDARD

CINEMA

ISF-DAY

ISF-NIGHT

AMBIENT-1

AMBIENT-2

ONTIME CLEAR - clears (unsets) the Power On Time for the schedule

ONTIME hh:mm - sets the Power On Time to hh hours and mm minutes. Hours should be specified in 24 hour format.

OFFTIME CLEAR - clears (unsets) the Power Off Time for the schedule

OFFTIME hh:mm - sets the Power Off Time to hh hours and mm minutes. Hours should be specified in 24 hour format.

Example 1

```
SCHEDULE 1 DISABLE
```

This disables the schedule #1

Example 2

```
SCHEDULE 2 ENABLE EVERYDAY SET INPUT HDMI ONTIME 8:30 OFFTIME 17:00
```

This enables the schedule #2, sets the Every Day setting, Selects the HDMI input, sets the Power On Time to 8:30AM, and sets the Power Off Time to 5:00PM.

Example 3

```
SCHEDULE 3 ENABLE EVERYDAY CLEAR EVERYWEEK SET MONDAY CLEAR TUESDAY CLEAR WEDNESDAY CLEAR
THURSDAY CLEAR FRIDAY CLEAR SATURDAY SET SUNDAY SET
```

This enables the schedule #3, clears the Every Day setting, as well as Monday-Friday, but sets Saturday and Sunday, as well as Every Week.

Note: *To reset all schedules, the "Menu Tree Reset" OPCODE with the value "Reset Schedule" can be used, followed by a delay to allow the display time to process the reset command. e.g. add the following lines to the script:*

```
SETOPCODE "Menu Tree Reset" TO "Reset Schedule"

WAIT 3000
```

Further Script Examples

Further examples of various scripts are installed with the application. See the ***SampleScripts*** sub-folder in the ***NEC PD Comms Tool*** folder on the Windows start menu.

Chapter 6

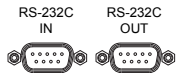
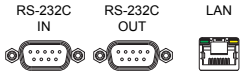
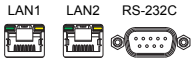
Example Display Connections

Configuring Connections

Displays can be connected to the host PC in a variety of ways using RS232 or LAN, depending on the model.

Displays can also be daisy-chained together using RS232 or LAN cables, depending on the model. Daisy-chaining displays can simplify cable wiring, and allows more than one display to be controlled from one access connection, as well as minimizing the lengths and number of cable runs.

The following table shows the types of daisy-chains available depending on the connection configuration of the display model being used.

Display connection configuration	Connection description	Daisy-chain type	Input connection to first display in daisy-chain
	RS-232C IN and OUT	RS232	RS232
	RS-232C IN, OUT, and LAN	RS232	LAN or RS232 (selectable)
	RS-232C IN, LAN 1 and LAN2	LAN	LAN or RS232

To determine the correct display connection configuration for each display model:

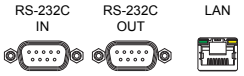
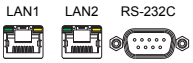
- Look at the physical connections on the display.
- Refer to the display's User's Manual.

About Monitor IDs

- **Each display has a Monitor ID number that is used to individually identify and address it when used in a daisy-chain.**
- **Each display in a daisy-chain must have a unique Monitor ID.**
- **The Monitor ID is configured via the OSD. Models that support LAN daisy-chains can have the Monitor ID set automatically using the Auto ID function. See "Using the Auto ID function with a LAN daisy-chain" on page 52 and the display User's Manual for more information.**
- **The Monitor ID configured in the software must match the Monitor ID on each display.**
- **Monitor IDs also allow displays to be individually controlled from a single IR remote control. See the display User's Manual for more information on using the IR Remote with multiple displays.**

The following sections describe each of the 3 basic connection types for connecting multiple displays.

Direct LAN

Supported display connection configurations	
	RS-232C IN, OUT, and LAN
	RS-232C IN, LAN 1 and LAN2

Models that have an RJ45 LAN connection can be individually connected directly to a LAN via a hub or switch instead of daisy-chaining displays together. This may require more wiring since each display is individually connected directly to a central LAN hub or switch. The advantages of using this method is that communications to other displays will still function even if:

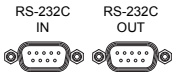
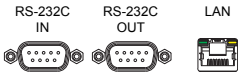
- A display is removed from the system without bridging the daisy-chain.
- A display looses AC power or is turned off via the display's main power switch.
- A display fails.
- There is a fault in cabling to an individual display.
- A display enters standby power mode and the LAN POWER setting is set to OFF (models that support LAN daisy-chain only).

See "Example: Direct Multi IP LAN" on page 56.

Important points to note:

- Each display must have a unique IP address.
- Since each display is addressed by the combination of IP address and Monitor ID, each display can have the same or unique Monitor IDs.

RS232 Daisy-chain

Supported display connection configurations	
	RS-232C IN and OUT
	RS-232C IN, OUT, and LAN

Models that have two RS232 connections (not including any RS232 connections on OPS devices), support RS232 daisy-chaining. The connection labeled IN is the input to the display from the host PC. The other connection labeled OUT is the output to connect to the IN on the next display in the daisy chain.

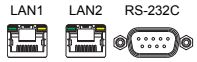
See "Example: Single IP LAN with daisy-chained RS232" on page 55 and "Example: Daisy-chained RS232 with one COM port" on page 53.

Important points to note:

- When using RS232 to connect displays using a daisy-chain, each display on the chain must have a unique Monitor ID (set via the display's OSD).
- Displays must be connected using an RS232 serial NULL modem cable (also known as a "crossover" cable).
- The first display in the daisy-chain can be connected to the host PC either via RS232, or by LAN if the model has an RJ45 LAN connection (not including any RJ45 LAN connections on OPS devices). When connected via LAN, the first display can forward commands received over LAN to other displays in the RS232 daisy-chain.

- The RS232 connection from the host PC must connect to the RS232 IN on the first display.
- Communications via both LAN and RS232 are not supported at the same time. The type of communications link to use to the display must be selected by OSD setting EXTERNAL CONTROL RS-232C / LAN.

LAN Daisy-chain

Supported display connection configurations	
	RS-232C IN, LAN 1 and LAN2

Models that have two RJ45 LAN connections (not including any RJ45 LAN connections on OPS devices) support LAN daisy-chaining. The RJ45 LAN connection labeled LAN1 should be used as an input to the display from the network or host PC. The other LAN connection labeled LAN2 is the output to connect to the LAN1 on the next display in the daisy chain.

The display functions as a two port LAN hub for LAN traffic.

Important: *The LAN hub function only works when AC power is applied to the display and the LAN interface is powered on. By default the LAN POWER setting is set to turn off when the display enters a standby power mode. This will prevent communications with other devices along the LAN daisy-chain. To prevent this, change the LAN POWER setting ON - either via the OSD, or via the "LAN Power" OpCode.*

The first display in a LAN daisy-chain communicates with the host PC using either an RS232 direct connection, or by connecting LAN1 to the network. Selection between the LAN1 and RS232 ports is done automatically by the display.

Displays in a LAN daisy-chain that are connected to a LAN network can be addressed in two different ways:

1. Directly:

Each display in a LAN daisy-chain can also be communicated with directly by addressing the display by it's IP address and Monitor ID.

See "Example: Multi IP LAN using LAN daisy-chain" on page 57.

2. Via Translation:

The first display in a LAN daisy-chain can act as a host for commands it receives for any of the other displays further along the daisy-chain. It will translate and forward to the relevant display any commands received via the LAN2 connection sent to it's IP address, but with Monitor IDs for other displays in the daisy-chain.

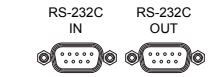
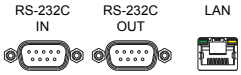
In order to do this, the Auto ID function must be successfully performed on the first display. The Auto ID function is used to identify all displays along the LAN daisy-chain and assign them sequential Monitor IDs. The first display in the LAN daisy-chain stores a table of the IP addresses and assigned Monitor IDs for all of the other displays in the daisy-chain.

See the following for more information on using the Auto ID function.

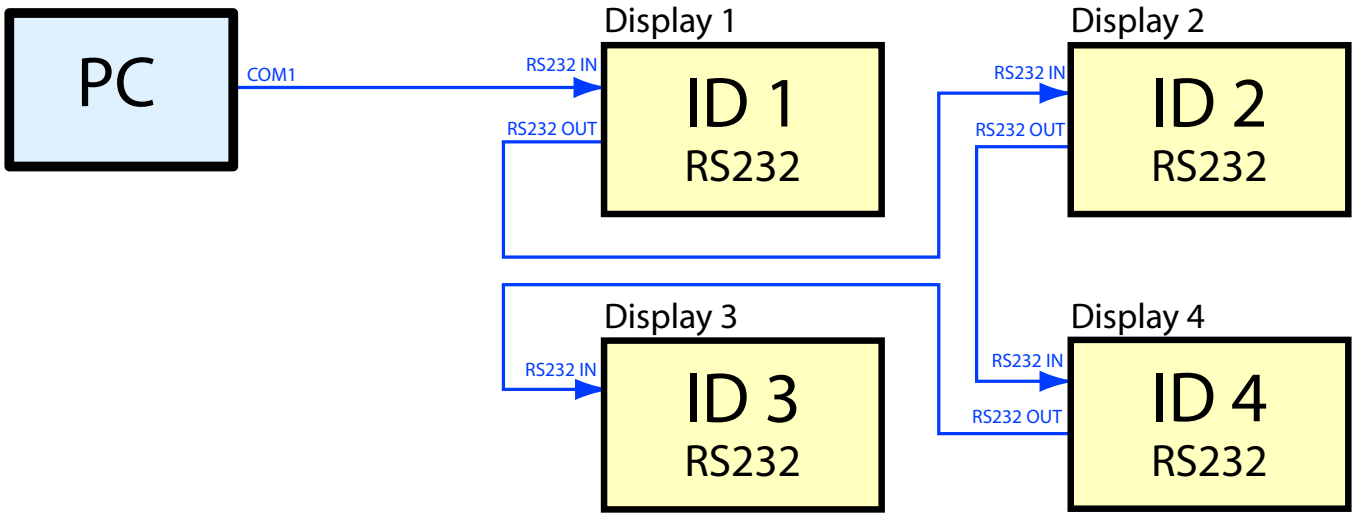
Using the Auto ID function with a LAN daisy-chain

- The LAN2 RJ45 (output) of a display must connect to the LAN1 RJ45 (input) on the next display in a daisy-chain.
- Each display must have a unique IP address assigned.
- Network hub devices must not be used to create multiple branches of displays along the LAN daisy-chain. All displays must be connected sequentially.
- The LAN2 RJ45 of the last display in the daisy-chain must not be connected back to the network (do not form a network loop).
- Monitor IDs are automatically assigned sequentially starting at Monitor ID 1.
- Monitor IDs are assigned based on the physical LAN cable connection order - not the IP address assignment order.
- All displays must be powered on when performing the Auto ID function.
- The Auto ID function should only be performed from the first display in the daisy-chain. Do not perform Auto ID from displays further along the daisy-chain.

Example: Daisy-chained RS232 with one COM port

Supported display connection configurations	
	RS-232C IN and OUT
	RS-232C IN, OUT, and LAN

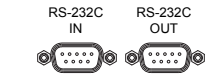
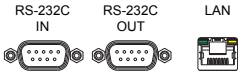
In this example, the host PC has one RS232 COM port, and all displays are daisy-chained together via RS232. Each display must have a unique MONITOR ID since they are all on the same daisy-chain. The RS232 OUT on the first display is connected to the RS232 IN on the next, etc.



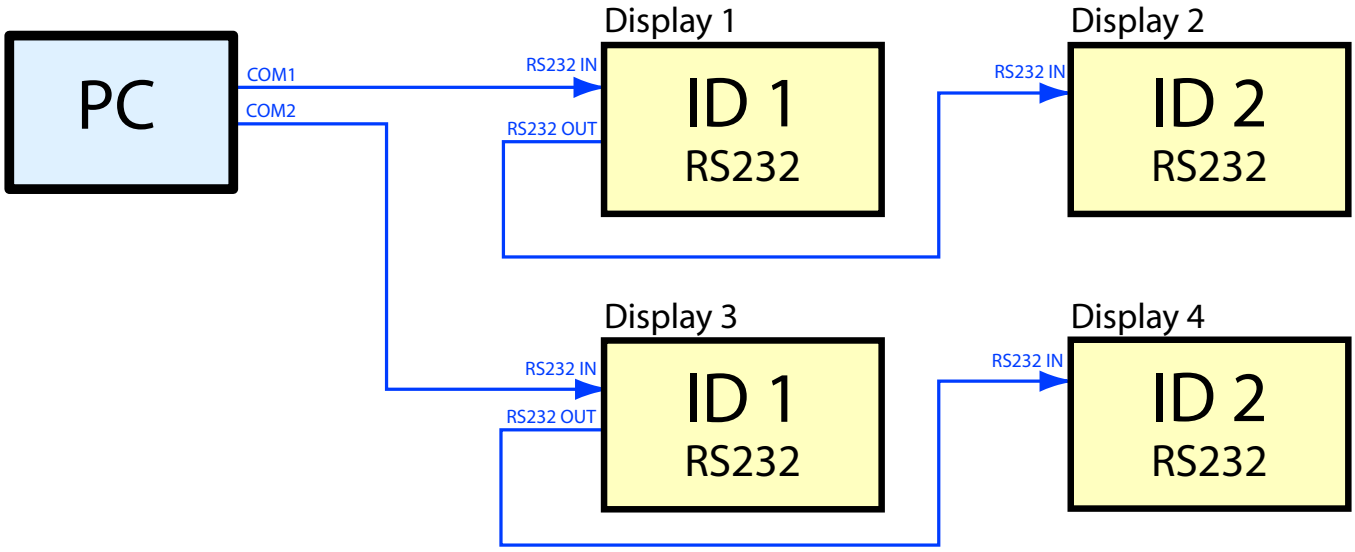
Note: For RS232 daisy-chains, the cable connections between displays does not need to follow the same ordering as the ID assignments. In this example the daisy-chain is connected in order 1 - 2 - 4 - 3.

Notice that all displays are accessed using the same COM port, even though only the first display is actually connected to the host PC.

Example: Daisy-chained RS232 with multiple COM ports

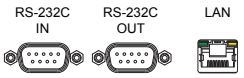
Supported display connection configurations	
	RS-232C IN and OUT
	RS-232C IN, OUT, and LAN

In this example, the host PC has two RS232 COM ports, and there are two separate daisy-chains. Each display on a daisy-chain must have a unique MONITOR ID.



Notice that displays connected on COM1 can have the same IDs as those on COM2 because they are on separate daisy-chains.

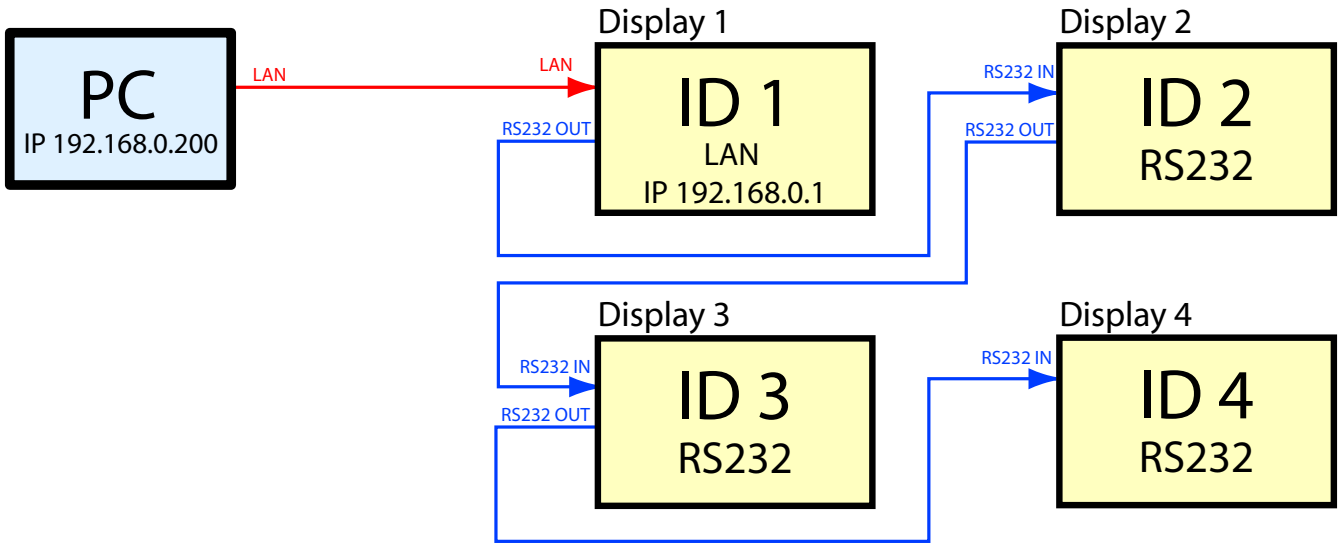
Example: Single IP LAN with daisy-chained RS232

Supported display connection configurations	
	RS-232C IN, OUT, and LAN

In this example, the host PC is connected to the first display via LAN. Subsequent displays are connected together using RS232 daisy-chaining. Each display on a daisy-chain must have a unique MONITOR ID.

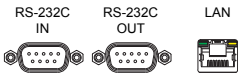
Important: *The first display is configured to use LAN as the EXTERNAL CONTROL on the OSD. The other displays are configured to use RS232 as the EXTERNAL CONTROL on the OSD. The RS232 OUT on the first display is connected to the RS232 IN on the next display.*

Since communications to all of the displays is routed through the first display, the software uses only the IP address of the first display. The first display then translates commands received via LAN to the RS232 OUT to be received by the other displays in the daisy-chain.



Notice that all of the displays are accessed via the LAN IP address of the first display, even though displays 2, 3, and 4 are connected together via RS232.

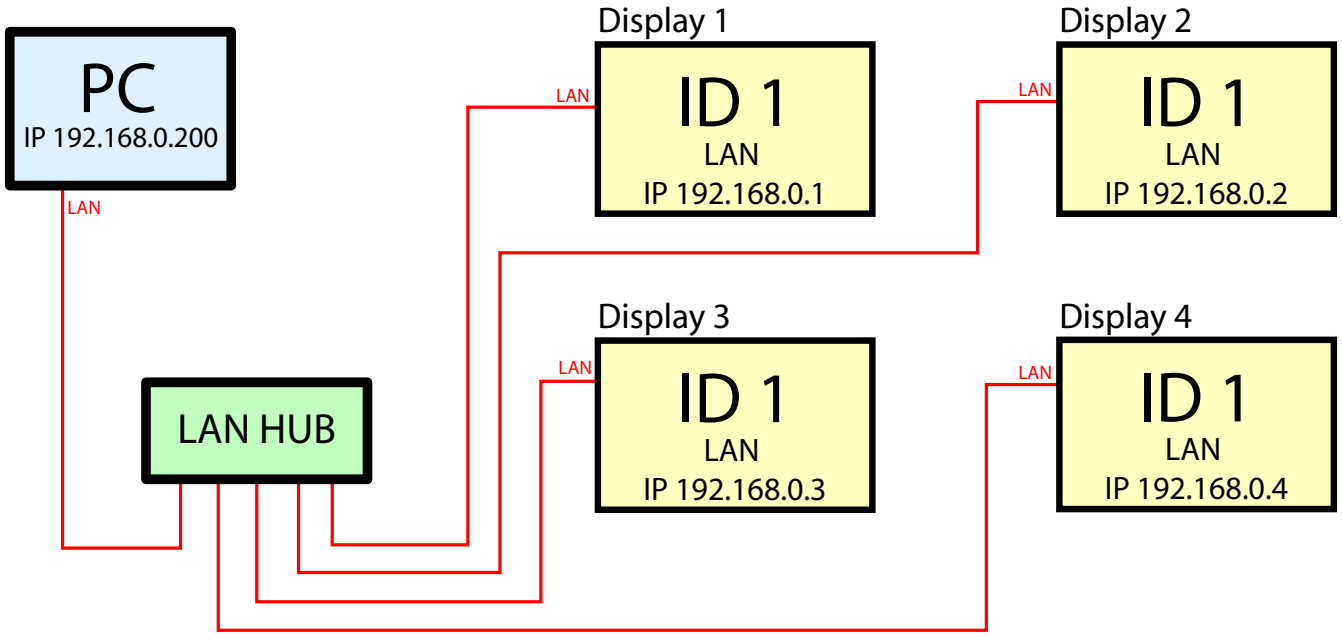
Example: Direct Multi IP LAN

Supported display connection configurations	
	RS-232C IN, LAN 1 and LAN2
	RS-232C IN, OUT, and LAN

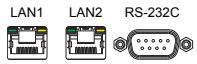
In this example, the host PC and each display are individually connected to the LAN via hub. Each display has a unique IP address.

Important: *Models with only one LAN connection must be configured to use LAN as the EXTERNAL CONTROL on the OSD. Models with two LAN connections do not have this setting.*

The Monitor ID of each display does not need to be unique since the displays are not daisy-chained, however the ID set on the OSD must match that set in the software.

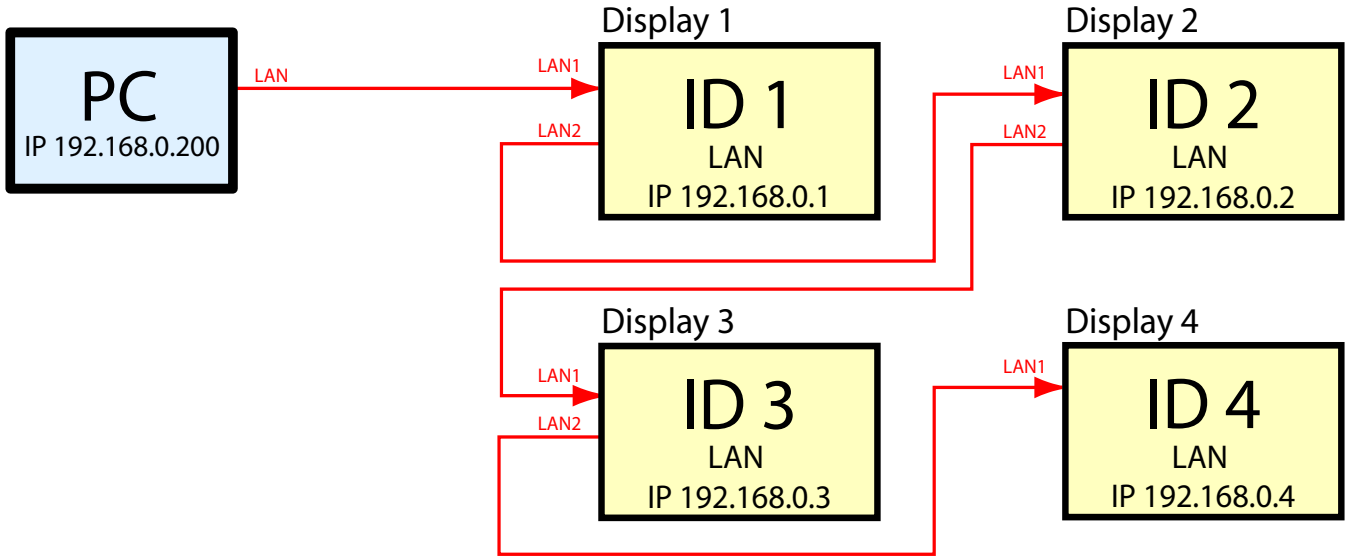


Example: Multi IP LAN using LAN daisy-chain

Supported display connection configurations	
	RS-232C IN, LAN 1 and LAN2

In this example displays are daisy-chained together using LAN connections. The host PC is connected to the first display via the LAN1 RJ45 connection, and the LAN2 (output) is connected to the LAN1 (input) on the next display in the daisy-chain.

Each display has a unique IP address manually assigned.



The displays act as 2-port LAN hubs and pass LAN communications through.

The Auto ID operation must be performed manually on the first display once all of the displays are connected and powered up. See "Using the Auto ID function with a LAN daisy-chain" on page 52 for more information on performing this operation. This will automatically detect the displays in the LAN daisy-chain and assign sequential Monitor IDs based on the physical cable connection order of the displays.

Important:

AC power must be applied to the displays in order for each LAN hub to function.

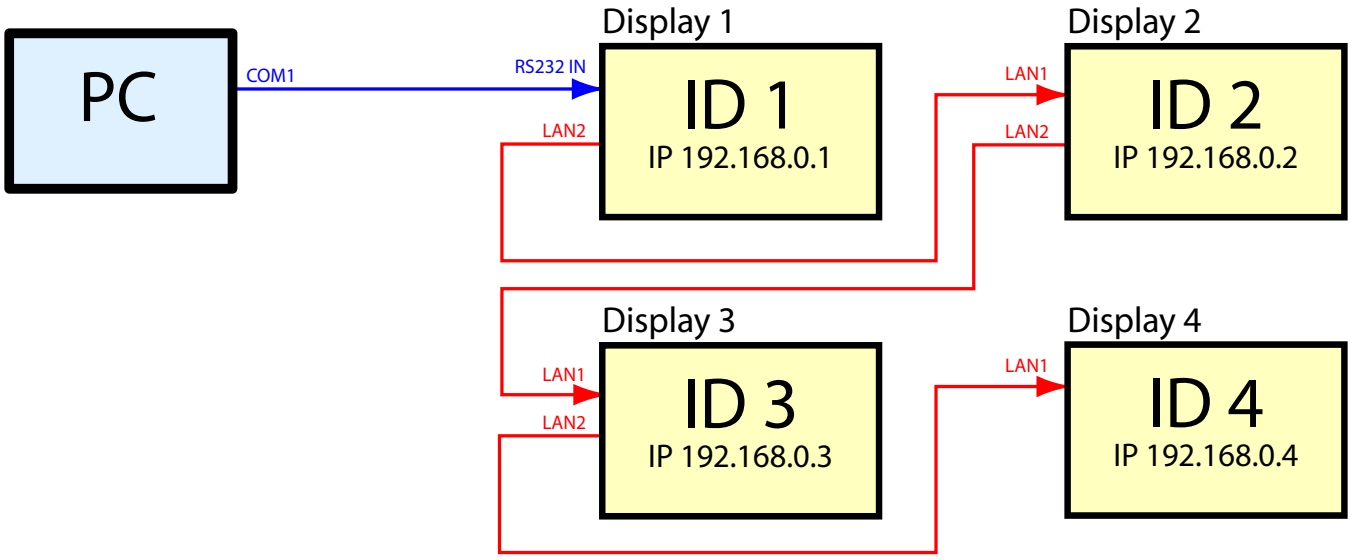
The LAN POWER setting on each display must be set to ON to allow the display to function as a LAN hub even when the display is in a power saving mode. If this setting is set to OFF, the LAN hub will not function when the display is in a power saving mode and communications to other devices in the daisy-chain will be lost. To prevent this, change the LAN POWER setting ON - either via the OSD, or via the LAN Power OpCode.

Example: RS232 using LAN daisy-chain

Supported display connection configurations	
LAN1 LAN2 RS-232C	RS-232C IN, LAN 1 and LAN2

In this example, the host PC is connected to the first display via RS232. The displays are daisy-chained together using LAN connections. The LAN2 (output) is connected to the LAN1 (input) on the next display in the daisy-chain.

Each display has a unique IP address assigned.



The first display will translate and forward RS232 communications from the host PC over the LAN connection to the other displays.

The Auto ID operation must be performed manually on the first display once all of the displays are connected and powered up. See "Using the Auto ID function with a LAN daisy-chain" on page 52 for more information on performing this operation. This will automatically detect the displays in the LAN daisy-chain and assign sequential Monitor IDs based on the physical cable connection order of the displays.

Note:

If the displays are going to be connected to a network in order to provide remote control or monitoring (by connecting LAN1 on Display 1 to the LAN) then each display should have a unique IP address assigned manually.

However if the displays are not going to be connected to a network and only the RS232 connection on the first display will be used, then it is not necessary to manually assign them IP addresses. The displays will automatically assign themselves IP addresses if no DNS is detected and the IP SETTING is set the AUTO.

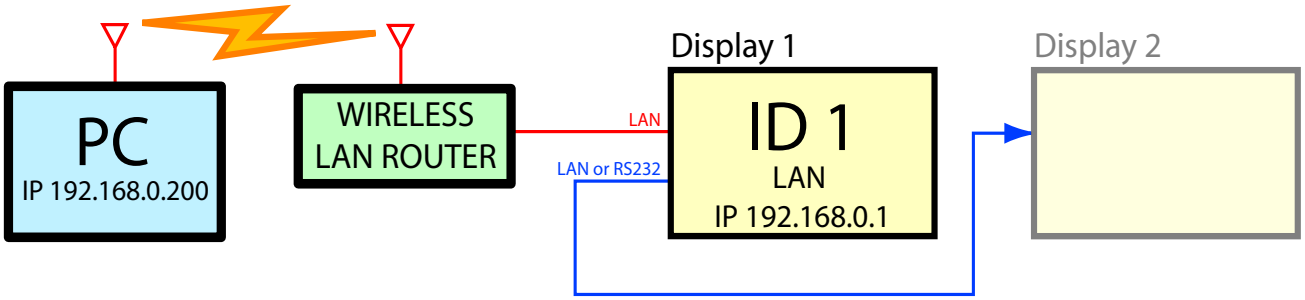
Since communications to Displays 2, 3 and 4 is routed through and translated by Display 1, the Communications Interface in the software should be set so that Displays 2, 3, and 4 use the same RS232 COM port as Display 1, even though they are using a daisy-chain LAN connection to Display 1.

Note: *The Monitor ID numbers are assigned sequentially based on the physical connection order of the displays when the Auto ID operation is performed. The layout and ID assignments in the software must match accordingly.*

Connecting to displays wirelessly

Displays can be accessed wirelessly by using a Wireless Router or Access Point connected to the displays as shown in the following example.

Important: *Make sure any wireless firewall settings on the don't block communications on port 7142.*



Chapter 7

Assigning an IP address

Displays connected via LAN need to be assigned an IP address so that they can be remotely accessed. Each display with a LAN interface has a default IP address of 192.168.0.10. This address must be changed in order to avoid conflicts when other displays are connected to the LAN. When the LAN RESET operation is performed on a display's OSD, the IP address will be reset to the default value.

Most models of display support setting the network settings directly via the OSD. **The following steps can be skipped if the network settings can be configured using the OSD menu.**

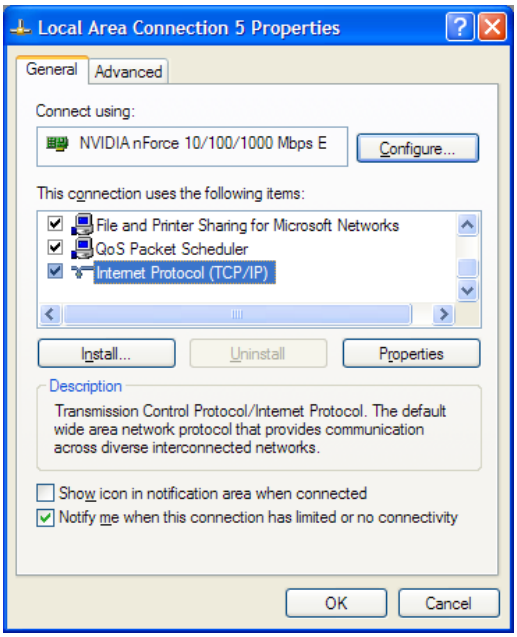
Important: *It is recommended to reset the power to the display after changing the LAN settings in order for the new settings to be recognized.*

Setting the IP address via a web browser:

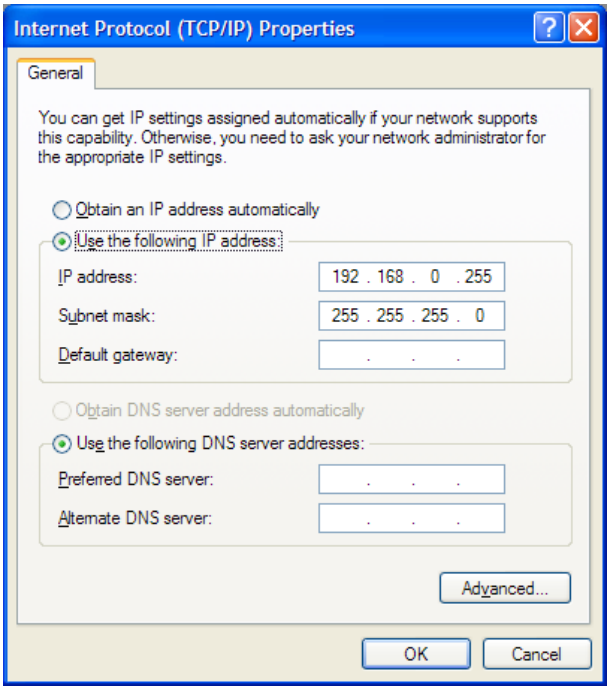
The IP address of a display can be assigned by connecting a PC directly to the LAN port on the display, or via a LAN HUB while no other devices are connected. Note that a crossover LAN cable may be necessary on some display models if the PC is connected directly to the display.

If the PC being used to set the IP address of the display is not currently set to access the subnet that includes the display's defaults IP address, it will be necessary to temporarily modify the network settings in order to assign the PC a temporary IP address and subnet so that the display can be accessed. Once the display has been configured the PC network settings should be restored.

Follow these steps:



Open the *Network Settings properties* of the PC, and select *Internet Protocol TCP/IP* in the list, then click the *Properties* button.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 255
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Next enter a temporary IP address for the PC, such as 192.168.0.255, and a subnet mask of 255.255.255.0. Click *OK* and close the Network Settings.

Next open a web browser and go to the URL of the display's web server by entering:

`http://192.168.0.10`

This should display the display's MONITOR NETWORK SETTINGS page.

If this page can not be reached:

- Confirm that the display is powered on and connected to the PC either directly or via a HUB.
- Confirm that the IP address assigned to the display is at the default value, by performing a LAN RESET from the OSD on the display.
- Confirm that the EXTERNAL CONTROL setting on the OSD is set to LAN.
- Try refreshing the web page in the browser. It may take several refreshes before the display can be found.
- Check if any firewall software or settings on the PC could be preventing access to the display's IP address.
- Try resetting the power to the display.

Once the web page has appeared, the display's IP address and subnet mask can be entered and updated in the display. It is highly recommended to assign each display a static IP address so that the IP address will not be reassigned to another device if the network is reset.

Note: Once the IP address is updated, the display will no longer be accessible from the current IP address.

Next restore the original network settings on the PC.

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USA and Canada: www.necdisplay.com

Europe: www.nec-display-solutions.com